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Etiology of the Osteopathic Lesion

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THE only parts of two bones in direct contact are the articular surfaces. The mechanics of lesions must, therefore, have reference to these surfaces.

When an articulation is carried beyond the normal range of its motion a *momentary lesion* is produced. This usually is *promptly reduced* by the tension of the ligaments of the joint. When it does not so reduce itself, what are the mechanical factors that cause it to be maintained as a lesion?

It seems perfectly obvious that so long as articulations remain *within the normal range* of their motion, lesion should be impossible. It seems equally obvious that when this normal range is exceeded, so long as articular surfaces *remain parallel*, lesion should be impossible; there would then be nothing to prevent their being drawn promptly back to normal as soon as the strain carrying them beyond was removed. The tension of ligaments and the relations of articular surfaces beyond the normal are, therefore, the factors that should be studied.

Articular surfaces and strength of ligaments are automatically adjusted to the normal range of motion in each joint. This range in the human spine is slight, so that the limit of motion is near and easily exceeded. The strength and elasticity of ligaments is uniform throughout the body and, presumably, is not greater in proportion when the limit of the range of motion is near.

The first slight stretching is easy, but brings the articulation much closer to lesion in spinal joints than in other joints, so that heavy straining produces lesion in the spine more easily than in other articulations. Therefore a strain equally distributed from, say the hand to the feet, will, if all are carried to the limits of their normal range and then subject to further strain, be more likely to produce lesion in the articulations of the spine than in better protected joints.

In such excess of motion the articular surfaces of the spine are rarely parallel to each other. The motion of no joint in the body is in a right line, except at the very beginning of motion, and the farther it moves the farther does it depart from that right line. The fact that the two bones of an articulation are fastened to each other makes their motion with reference to each other necessarily either a hinge motion or a rotation. The shorter the ligaments by which they are fastened to each other, the sharper must be the curve of that motion. Illustration of this law is seen in the fact that every articulation in the body is curved, and in more than one direction.

The length of these curves is adjusted to the normal range of motion in the joint. In the elbows, with their nearly two right angles of motion, they are very long and cover half a circle or more. In the vertebral articulations with their slight motion they are correspondingly small and their curve is slight. When, therefore, the range of motion in a vertebra is exceeded, one surface passes beyond the limit of the curve of the

other, and the *surfaces assume an angle to each other.*

The mechanical result of this is that the edge of one articular surface is in contact with the surface of the other side. In such case, if there is any pressure between them, a dent is made. It matters not what the materials be so that these are the same on both sides, this dent is produced. Both the surface and also the corner are compressed, but the corner does not cease to be a corner by being compressed, whereas the surface does cease to be a surface, be it compressed ever so slightly. So long as they are both of the same material this dent will be sufficient to hold them in that position if there is any pressure, unless enough force is used to damage or endanger the material. The dent in steel would be slight, but would be enough to hold steel. The dent in wood would be greater, but would be sufficient to hold wood.

Mechanical Principle Applies in Maintaining Lesions

In the articular surfaces of the vertebrae, provided as they are with a covering exceedingly smooth and well lubricated, this tendency is reduced to a minimum, but sufficient evidence is present that the same mechanical principle applies there, for lesions are found to be maintained in that way. A perfect illustration of this principle is found in a jammed bureau drawer. In the tissue of the joint there is a soft surface with hard material (bone) beneath, so that there is the additional factor here that a roll of the soft tissue would be formed in front of the corner as it is drawn toward the normal, just as there is a roll or wrinkle formed in front of the finger sliding forward over the tablecloth. This wrinkle would tend to aid in maintaining lesion.

A dent would not, however, be produced unless there were pressure between the parts engaged. This is supplied by the ligaments, and in view of the fact that the normal range cannot be passed without abnormally stretching them, this pressure would necessarily be great.

The essentials, then, in the maintaining of lesions are, strain beyond the normal range of motion, angular relation of surfaces to each other, tension of ligaments, with the resulting dent or wrinkle.

There is another factor which is usually present, but is not essential—a factor which increases the angular relation of the articular surfaces. An articulation moving in any direction in a straight line to the limit of its motion finds the ligaments then at their maximum strength, and lesions are not so easily produced. If, however, arriving at that limit in a straight line, motion in some *other angle is then added,* so that adjustment in this new angle is less easy on account of the tension already present in the ligaments, then an angular relation between the surfaces is easily produced.

This is to be considered as the equivalent of motion beyond the normal range of motion in any one direction; that is, even with little or no strain, this factor may cause lesion, especially if the primary motion be returned toward normal before the secondary motion. Possibly the majority of actual lesions are produced in this way. The other mechanical factors are the same as those in such motion beyond the normal range in one direction — a double deviation, angular pressure, the rolling up of soft tissue in front of the corner, angle, or rough surface and the tension of ligaments.

Even in joints which cannot without gross surgical dislocation be carried to a position where the surfaces are at angle with each other, there are yet lesions. Another form of lesion must be suspected. This seems to be due to the production of a wrinkle in the surface, such as is clearly seen in the articulation of the jaw bone. Inflammation of the synovial tissue of a joint producing an uneven surface would lead to wrinkle of that surface under the pressure of the other side of the joint.

This mechanical factor may be present to a less degree in many ribs. On many transverse processes are facets for ribs that cover in some few cases as much as a third of a circle, where nothing less than gross surgical lesions could bring their surfaces to an angle with each other, where are yet found lesions from which irritation is set up sufficient to cause disease. In such lesions the limitation of motion shows the presence of some mechanical factor such as would be supplied by such a wrinkle.

Lesions are *prevented* or opposed by the same factors that normally *limit* motion.

In the typical dorsal vertebrae the limita-

tions to motion are different in the different directions. In extension the upper articulation can move until it encounters the actual bone of the vertebra below. That it actually encounters this in any but extreme extension is highly improbable, as there is rarely evidence on the bones of such contact. But in such extreme extension as would be necessary to produce a lesion this doubtless becomes a factor and prevents the production of primary lesion in extension.

In the lateral aspects also the limitation is actual bone in all of the lumbar vertebrae and to a slight extent in the dorsal and cervical areas.

In the lumbar region the superior articular processes sometimes almost convert the articulation into a cylinder, with protection perfect for rotation, less so for side-bending, very imperfect for flexion side bending.

In the dorsal area the ribs form the only bony lateral protection, fastened to the posterior corners of the bodies. Protecting in normal ranges of motion, they yet become a factor in lesions in extreme motions.

In the cervical region a tip reaching up from the lateral aspect of each vertebral body forms the bony lateral protection. Protection in normal ranges of motion, it yet becomes a factor in lesion in extreme side-bending, possible also in rotation.

The Majority of Lesions Are Flexion Lesions

In flexion the limitation to motion is nowhere bony, but is solely ligamentous in all parts of the spine. The great majority of lesions therefore are flexion lesions. But in flexion, in the median line, the strength of the ligaments is at its maximum, since all are evenly stretched. Lesion can occur in the median line, but is not so easily produced nor so frequent as unilateral flexion lesions. If, in addition to flexion to the normal limit we add side-bending, then the ligaments of one side will bear the brunt of the strain and will be the more easily stretched beyond the normal. Also the movement being limited by reason of having reached the limit of flexion, rotation added may easily become of the nature of an excess, with easy production of lesion. If now the spine is extended before the side-bend, or relation is restored, lesion is likely to result. The great majority of lesions found are of this nature.

But in such a case the limitation to motion being on one side, the opposite side may recover itself—may, that is, be extended again as the strain is relieved. One side being extended while the other side remains flexed results in rotation of the spine of that vertebra to that side which remains caught, wherefore such unilateral flexion lesions *appear* to be rotations. The early literature of the profession referred to lesions as being out to the right or to the left, and mentioned no other form of lesions in the spine itself. In my opinion much the most numerous and most serious form of lesion has passed almost unregarded—the flexion or separation lesion, which may or may not have a secondary rotation, which is not so easily detected by the fingers, and which seems, therefore, to have passed almost unregarded by the profession.

The mechanics of lesions as described here is practically the mechanics for all lesions, with adaptations of the principles to differences in the form of articular surfaces.

The mechanics of lesions then embraces two factors—the shape of articular surfaces and changing angle of their motion with reference to each other, and the strength of ligaments. In the work done on this subject at the A. T. Still Research Institute and by Dr. Carl P. McConnell personally, this latter factor was somewhat illumined. "If we cut all of the ligaments connecting two vertebrae, the lesion will straighten itself out," said Dr. McConnell. This was the first statement based on actual experimenting made by him. He later made the statement that to produce a lesion it was necessary to produce extreme motion in one direction and then to twist in some other direction. In 1915 he made the contribution that to produce lesion in animals it was necessary to force an articulation until the ligaments were felt to "give." These statements harmonize with the etiology as here presented. Further experimental study of this factor, the dynamics of ligament, would be of tremendous value to the osteopathic profession.

In a questionaire as to methods of reduction that had proven successful in practice, conducted by Dr. McConnell, a summary of replies showed that there were two quite distinct tendencies in technic. One he called

the dynamic method, the other the anatomic method. The first consisted of overcoming the lesion by force, with direct traction or pressure in the direction opposite to that in which the lesion had deviated, using flexion to overcome extension and vice versa. The anatomic method took cognizance of the anatomical factors and attempted to unlock the lesion and reduce with a minimum of disturbance or strain. The technic in these cases was almost the diametrically opposite of the former. It consisted of first "unlocking" the lesion and then carrying it to normal.

The success of the former method depends upon the elasticity of the articular elements, and upon the fact that producing motion to the limit and beyond in any direction will stretch part of the ligaments of a joint, and that among other motions made in this so-called "dynamic" method will be some that stretch those on the side engaged, tending to release the lesion.

Logical Origin and Purpose of Anatomic Method

The latter, the anatomic method, arises logically and naturally from the mechanics as here given. It aims to "unlock" in the words of some; to "retrace the path" through which the bone was put into lesion, according to others; to "exaggerate, rotate, and reduce," according to the principle as enunciated by the first teachers. In this method, in the first stage the articulation in lesion is carried to the limit of its motion and then stretched more, in the same direction in which it has been carried, for the purpose of diminishing momentarily the tension of the ligaments, which are the chief retaining factors, and of overcoming the "set" in the soft and elastic material. A further effect of this stretching may be to smooth out the "wrinkle" or dent produced by the edge or corner of one bone against the articular surface of the other.

In the second stage the bones being held as well as possible in this stretched position, the whole is moved so that the side caught is forced open, unlocked by the leverage. Of course an actual gap is not produced, but the abnormal tensions are overcome, and the "catch" released.

The third stage is to bring the articular surfaces parallel to each other, or as it is said, to rotate to normal, and a fourth stage may be added—the stretching of ligaments on the opposite side, so as to reduce the likelihood of lesion recurring. All the progress in technic seems to favor this latter method. This in turn verifies the conception of the etiology of lesion as given here. More extended treatment of this subject is a matter for osteopathic technic.

The mechanics of "warps" differs from that of primary lesions in that the most essential factor, the ligamentous tension, is lacking. The warp is produced by the slow yielding of tissue to continuous or repeated strain of one kind. Ligament and soft tissue generally are quickly adapted to average tensions and average positions, and even the bony tissue adapts itself in time. A position repeatedly assumed or long maintained produces a positive change in the length and tension of ligaments, and after a time, this adaptation remains, not changing itself spontaneously when the cause is removed, and after a greater length of time the adaptation becomes permanent.

At every phase of the development of warp lesions, however, there is the loss of equilibrium in a structure depending upon equilibrium for its effective functioning. And in a structure whose parts are interdependent, equilibrium being the basis of their interdependence, one being thrown out of balance all the rest are necessarily affected as a consequence. The natural result of a warp in any machinery is a buckle near or within the area of the warp. The natural effect of a warp in the spine is an actual lesion in or near it. The warp acts as a limitation to motion, so that there is a greater strain at either end, whereas at the center of the warp there is an exposed point, on account of the convergence of strains, with danger of a lesion at that point.

At all stages of the development of the warp there is also a struggle between the normal forces of the spine and these warping forces, not so acute as in actual primary lesions, but sufficient to reflect itself in the functioning of the nerves connected therewith.

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Pathology of the Osteopathic Lesion

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(*Address before the Kansas City Session of the A. O. A., July 31-Aug. 5, 1916*).

Series No. 30 (*)

RESEARCH in pathology has accomplished much and in many cases the definite causative factors of disease are well established in gross pathology, but the cause or causes of the development of gross pathology are yet in many instances as much of a mystery as they ever were. It is for this reason that theories of disease causation are rapidly changing and medical literature is largely monographic.

One of the greatest problems we have to encounter in the study of disease is the cause of pathologic change. Since the osteopathic theory of disease assumes a mechanical cause, it is our work to determine a mechanical cause for pathology and this is the purpose of our experimentation.

It was our purpose in this series to control the work of Dr. McConnell and to extend this investigation, if possible, to certain phases which he may not have reached.

Statement of Problems

1. Is the interosseous lesion accompanied by and causative of morphological change in other structures?

Granting the first problem answered in the affirmative, from previous experimental work:

2. Are the structures so affected supplied by nerve fibers arising from the cord in immediate proximity to the lesioned region?

3. What is the length of time required for the development of morphological change, and,

4. What is the nature of the resulting changes?

Review of Former Work Done

The following is a brief review of Dr. McConnell's work kindly submitted by him:

I think it is evident that the tissue and cell changes of deterioration can be classed as true degeneration, for there is a chemical transformation of the tissues themselves, and results in lessening of functional power.

In the early visceral changes there is congestion, edema and so-termed cloudy swelling. The cells are swollen and contents clouded. This implies a granular or parenchymatous degeneration.

In the stomach and small intestines I noted early parenchymatous degeneration of the mucous coat. There is cloudy swelling and degeneration of the base and nuclei, and in certain places atrophy. There is frequent extreme dilatation of the veins, with ecchymosis and in some instances actual hemorrhage. Diapedesis plays an important role.

In the kidneys congestion, engorged veins and slight cell infiltration are among the early changes. Hemorrhagic inflammation of the tubules is common, with areas of cellular degeneration.

The liver and spleen in certain cases were congested. The middle lobe of the liver was principally affected. There is feeble staining and perivascular infiltration. This results in nutritional disturbance of the cellular tissue.

In the pancreas and adrenals in certain instances there was considerable congestion. In the former organ especially throughout several of the islands of Langerhans.

Other marked changes in organs was the production of parenchymatous goitres.

Blood vessel changes have been a notable feature, from disturbances of the intima to dilatation, plasma leakage, leucocytal invasion, diapedesis and ecchymosis.

(*)Thirty series of research work bearing either directly or indirectly on osteopathic problems have been done by my co-workers and myself. The results have been written in series form for the purpose of making reference more easy. Three of these series have not been completed and have therefore not been published. In fact, it is not claimed that any of this work is complete in any sense—it is hardly a beginning of what could and should be done. The results of these various series are published in The A. T. Still Research Institute Bulletin No. 2 with the exception of the last two, which have appeared in this Journal. This statement is made because it will be necessary to refer to several of these different series in this.

The nerve tissue effects have been marked. Parenchymatous degeneration of medullated axones within and without certain spinal cord tracts; beginning degeneration of nerve cells, swollen axis cylinders, hyperemic vessels and cell infiltration of cell groups in the cord. Likewise vascular and nervous changes in the posterior spinal and sympathetic ganglia.

These are early changes in osteopathic pathology based upon several score cases. But this should not be so interpreted that every so-called osteopathic lesion is productive of organic change, and that certain exciting and secondary factors are of no importance.

From the results of the various series of our work mentioned in footnote (1) the following observations are given. It should be understood that at the time most of this work was done we were studying problems in osteopathic physiology and the findings, therefore, deal chiefly with physiological perversions or functional pathology rather than with morphological pathology.

In our series No. 2 it was clearly demonstrated that marked functional perversions such as variations in blood pressure, respiration, etc., could be caused by spinal interosseous lesions, and that these changes were not due to accident, massage of the parts or ordinary environmental conditions.

In series No. 4 it was shown that a clinical state simulating pancreatic diabetes could be produced in normal dogs as a result of spinal subluxations experimentally produced.

From series No. 9 Dr. Robb observed that "Production of a lesion (in a normal animal) is sometimes sufficient to produce persistent spontaneous peristalsis" and "an antiperistalsis occasionally observed, which is apparently due to an action of the splanchnic nerves."

From series No. 10 we have concluded among other things that spinal lesions are capable of causing certain perversions of the normal function of the nervous mechanism which reflexly materially interfere with the normal nerve control of various viscera, thus causing perversions of function and often a far reaching disturbance of the coordinative functions of various organs.

While the results as given above in series Nos. 9 and 10 have no direct bearing on structural pathology they do suggest that if these physiological perversions were long maintained a permanent or organic condition of the structures so affected would probably result.

In series No. 11 ("Study of Physiological Perversions Resulting from Innominate Lesions") after the physiological perversions had been recorded, the sciatic nerves and a part of the cord in some animals were carefully removed and sent to Dr. McConnell for pathologic examination. Tubes 1, 2, 3, 6 and 7 contained tissue from the lesioned side, while the tissue in tubes 4, 5 and 8 were taken from the unlesioned or normal side. Dr. McConnell did not know that these were sent for control until after he had made his report of the findings. His report is as follows:

I have made a large number of sections and have gone over the same several times. The following is noted: Specimens in Tubes 4, 5 and 8, negative; Tubes 1, 2, 3, 6 and 7, slight pathologic involvement. The pathology is slight, but definite. Several medullary sheaths in groups and a few scatterings have undergone a beginning parenchymatous degeneration. This is true in both the upper and lower sciatic sections, but changes are more pronounced, that is, numerically, in the nerve groups just outside the spinal cord on the right side. The sections of the spinal cord were not high enough to include these particular fibers.

There was a slight passive congestion in the sciatic nerve. No special lesion of the artery could be made out.

In series No. 12 and also in more recent work it has been shown that certain clinical conditions such as diarrhoea, constipation, albuminuria, etc., quickly result in monkeys following artificially produced spinal lesions. In some cases (first observed by Dr. A. R. Bell and later confirmed by Dr. A. Hollands) an albuminuria would develop within 24 hours after the lesion had been produced. This was too soon for the development of gross pathology, and can therefore be explained only by assuming the existence of a so-called functional pathology which really was a perversion of physiological control.

In this series Dr. T. L. McBeath observed a definite pathology of the pancreas, kidneys and liver following mid-dorsal lesions.

The results of series Nos. 16, 20 and 24 show clearly that the function of the kidneys can be quickly influenced osteopathically, and likewise the results of Nos. 17 and 18 show that the secretion of the liver can be similarly affected.

In series No. 20 it has been shown that spinal subluxations produced in the mid-

thoracic region of normal animals is usually followed by perversions of nutrition and usually a loss of weight and decreased resistance. This seems to be due to a disturbance of the functions of the organs of digestion, absorption and assimilation.

In some of our uncompleted work enough has been done to show that following mid and upper thoracic lesions a condition of hyperacidity develops, which later usually changes into hypoacidity. These changes seem to occur previous to the development of gross pathology. In another series not yet completed there was evidence of a measurable variation of body temperature resulting from spinal lesions produced in normal animals.

In series No. 22 Dr. Nicholson has obsered: "That there are tendencies toward congestion with abnormal conditions (interosseous lesions) of the spine," and "that there is an increased chromotolysis in nerve cells in connection with (interosseous) lesions."

In series No. 27, "Experimental Study of Goiter," Dr. H. L. Collins observed a definite pathology of the thyroid glands following cervical lesions in dogs.

From this work, while it is scarcely a beginning, it seems that we may safely conclude that many functional perversions which may be far reaching in effect do actually follow certain slight structural perversions and that many clinical states which have been previously considered as idiosyncrasias—due to functional pathology—have a definite cause. There is also much experimental evidence of definite pathological changes following the production of interosseous lesions in normal animals.

Methods and Technique

Obviously no definite conclusion can be derived from the study of a few animals, therefore 64 animals, rabbits and guinea pigs were taken for this series.

Selection and Care of Animals—It has been observed in a previous series (No. 28, A. O. A. JOURNAL, June, 1916) that unless rabbits and guinea pigs are carefully selected and kept under sanitary conditions, and are given a varied diet, they usualy suffer from nutritional disturbances and frequently die.

The animals for this series were, therefore, selected from healthy stock; kept in clean, well ventilated cages, and not crowded. They were given a varied diet of dry grain, such as wheat, oats and corn and plenty of fresh vegetable food, such as celery tops, cabbage, carrots, turnips, etc. They were observed for two months, after which time ten animals which did not seem to be entirely normal were discarded.

Grouping of Animals and Control Animals—The normal animals were now divided into three groups as follows: Group 1, ten rabbits and ten pigs were lesioned in the mid, fourth to seventh, thoracic region. Group 2, ten rabbits and ten pigs were lesioned in the lower, ninth to twelfth, thoracic region, and Group 3, eight rabbits and six pigs were kept unlesioned for controls. These animals were all kept under the same conditions and on the same food supply, but in different cages.

Method of Lesioning—The animals were given ether anesthesia, placed ventral surface on a table, the spine well stretched by traction on the hind legs, and with the selected vertebrae above the point to be lesioned held with the thumb and fingers the caudal end of the animal was rotated until a definite separation and rotation could be felt. The animals were examined occasionally, and in most cases after from one to six weeks the lesions were exaggerated by the same method. Repeated lesioning or exaggeration was not necessary in all animals. These animals were kept "in lesion" for from two to three months, and were then killed and studied. A few animals were kept "in lesion" for a short time only (one to two weeks) for the purpose of studying early changes if any should develop.

Pathological Technique — (*) Most of the animals were killed by ether anesthesia and promptly bled. Some were killed by decapitation for the purpose of controlling the ether method. In all cases the tissues were immediately removed, and in most cases placed in 10 per cent. formalin solution. In each animal, tissues were taken from various parts such as thyroid, heart, lungs, liver, pancreas, spleen, kidney, stom-

(*) I am indebted to Mr. Glenn Moore, junior student of the Chicago College of Osteopathy, for doing most of the technique, and to Drs. Nicholson and Collins for assisting with the technique. I am indebted to Drs. McConnell, Collins and Nicholson for studying the finished sections and for offering their suggestions as to the conditions present.

ach, duodenum and lower gut, and in some animals ovaries, uterus and testes were taken. This was done to determine the extent of pathologic involvement. No nerve tissue was examined in this series.

Technique No. 1 (the rapid method)—Small pieces of tissues were removed as quickly as possible and dropped into 10 per cent. formalin solution. It was kept in this for from five to ten minutes, removed to running water and washed until the odor of formalin was very indistinct. This generally takes from ten to twenty minutes. They were then placed in a gum and syrup mass (3) for ten minutes and were then ready for sectioning on freezing microtome. The tissue was placed in position on the microtome and frozen slowly, adding from time to time during the freezing small quantities of the gum and syrup mass so as to imbed the tissue thoroughly. This method enabled us to obtain sections ranging from eight to fifteen microns in thickness.

Method No. 2—Small pieces of tissue obtained and dropped into 96 per cent. alcohol, allowed to remain in alcohol for twelve hours, washed in running water for twelve hours, placed in gum and syrup mass for 25 minutes and sectioned on freezing microtome. This method caused much shrinking of tissue, yet did not exclude the pathologic findings.

Method No. 3—Small pieces of tissue placed in Zenker's Fluid for 24 hours, washed in running water twelve hours; half the specimens were then put in the gum and syrup mass and sectioned on freezing microtome. The other half was put through the graded alcohols, and sectioned in celloidin according to "Bailey's Histological Technique."

Results—As has been mentioned elsewhere, the prepared sections of this series were examined by Drs. McConnell, Nicholson and Collins and our diagnosis thus controlled. We feel, therefore, that the findings as reported are reliable. In some cases the findings were not just what I had expected, but the results are reported as found.

(*) **Gum and syrup mass** for general work—Ten parts gum acacia and seven parts syrup. For brain and spinal cord, retina, etc., nine parts syrup, and ten parts gum acacia.

The syrup is made by taking one pound loaf sugar and one pint distilled water and bringing the mixture to a boil.

The gum acacia solution is made by dissolving four ounces of gum acacia in six ounces water.

Pathologic Changes Found in Animals Lesioned in the Mid-Thoracic Region

No definite changes were observed in either the thyroid or heart tissues.

The Stomach—Slides from some animals showed congestion plus cytoplasmic oedema, some showed only a slight indefinite staining of the cytoplasm, and in some there was a definite beginning of cloudy swelling. The changes were not found to be as marked as was found by Dr. McConnell in his work. It is probable that if the animals had been kept "in lesion" for a greater length of time the more pronounced changes would have developed. It is also probable that we did not get the interosseous lesions produced as well as did Dr. McConnell. The fact that he used dogs and we used smaller animals surely must have made a difference, because it is more difficult to produce and maintain characteristic bony lesions in small animals.

Dr. McConnell has also observed, and we have confirmed his findings, that the tissues of guinea pigs and rabbits are "softer" and more difficult to prepare properly. The conditions under which we were working would not permit the use of dogs.

The Duodenum—In only a few animals was no definite pathologic change found. Most animals showed a rather marked change, particularly in the mucous coat. There was congestion, edema and definite cytoplasmic and nuclear changes. The tips of the villi showed the most marked degeneration.

The Liver—Slides prepared from a few animals showed nothing pathologic other than an indefinite staining of the cytoplasm and slight congestion. In most of the specimens, however, there was a definite nuclear degeneration, as well as cytoplasmic changes. The cytoplasm stained very indefinitely, the nuclei were distorted, shrunken, and in some cases seemed to fuse with the cytoplasms.

The Spleen—In a few animals no changes were observed. In some only slight

changes such as congestion and indefinite staining of the cytoplasm was observed. In most of the specimens there was marked conjection, definite cytoplasmic changes and beginning nuclear degeneration.

The Pancreas—This organ seemed to be most affected of any of the structures studied. In nearly all animals there was a definite nuclear as well as cytoplasmic degeneration.

The Kidneys—In some animals the kidneys were not affected. Most animals showed slight congestion, but there was no definite degeneration.

The Adrenals—The pathologic conditions of these organs were found to be about the same as that of the kidneys. In some specimens there were more marked changes, the cytoplasm indefinitely stained, but no nuclear changes were observed.

The Ileum and Colon—With a few exceptions these organs showed no definite pathologic change. In a few animals there was a slight congestion and in some specimens the cytoplasm did not stain distinctly, but no definite cytoplasmic or nuclear changes were observed.

Other Organs—No changes were found in the ovaries, uteri or testes.

Pathologic Changes Found in Animals Lesioned in the Lower Thoracic Region

There were no pathologic changes found in either the thyroid or heart tissues.

The Stomach—Specimens from many of the animals showed no changes. Some specimens showed only slight changes, while in others there were more definite morphologic changes, such as definite congestion, edema and a condition similar to a beginning of cloudy swelling. The changes were not so marked in any of the animals as in animals lesioned in the mid-thoracic region.

It will be seen that these changes are somewhat like the changes found from mid-thoracic lesions. A possible explanation is that probably in some animals the lesion was in the lower part of what we have termed the mid-thoracic region, and in others it was in the upper part of what we have termed the lower thoracic region. This means that the work has not been done with sufficient accuracy. There are many other possible causes of this variation, and the only answer is in more thorough investigation.

The Duodenum—No marked pathologic changes were observed. In some animals there was a slight congestion of the mucous coat and the cells seemed not to stain so distinctly, but there were no marked changes such as were found in animals lesioned in the mid-thoracic region.

The Liver—Some animals showed no definite pathologic change. Some showed only beginning changes while others showed definite morphologic changes such as hyperemia, cytoplasmic and neuclear degeneration. The same explanation applies here as suggested above for stomach pathology.

The Spleen and Pancreas—No very marked changes were observed. In some animals there was slight congestion only.

The Kidneys—This organ seemed to be the most affected, pathologically, from lower thoracic lesions. Only a few animals showed no definite marked changes. The changes vary from slight congestion to a marked degeneration of both cytoplasm and nucleus.

The Ileum and Colon—Most animals showed no definite changes. In some there was congestion of the mucous layer, and this seemed to be somewhat more marked than in those animals lesioned in the upper thoracic region, but there were no marked changes such as were found in other organs.

Other Organs—There were no definite morphologic changes found in the ovaries, uteri or testes.

Control Animals and Control Technique

There was not a single death or even a noticeable illness of any of the animals during the time of study, except in those animals which were affected by lesioning, as will be described. As mentioned above, ten of the less sturdy looking animals were omitted from the group during the period of normalization, but this was not because they actually showed any signs of disease.

In four of the animals, while trying to determine the greatest amount of rotation that could be produced without dislocating the spinal segments, the vertebrae were dislocated and paralysis occurred, but these animals were not used for the study of sections.

In two of the rabbits, one after first lesioning and one after exaggeration (midthoracic) a nervous condition developed, which consisted of a jerking of the head and a loss of general equilibrium. This "nervous state" was rather constant in one animal, but only occurred occasionally in the other. In both animals the symptoms were increased by excitement. These animals seemed to be normal otherwise, and lived two and three months respectively after the symptoms had developed. They were killed and examined, but no pathologic conditions were found different from that of the others. There was no discoverable fracture of the spine or injury to the cord.

Some of the animals were killed by decapitation (a sharp hatchet being used) for the purpose of controlling the ether method of killing and also for controlling the technique. A comparison of the tissues of lesioned and unlesioned animals killed by ether and by decapitation showed that the ether method of killing does not affect the tissues pathologically.

Tissues of some of the animals lesioned and unlesioned were prepared by both freezing microtome method and the long method commonly used, for the purpose of controlling the freezing method. No difference was observed, except that by the freezing method the sections could not be cut so thin and were therefore more difficult to study.

In two of the unlesioned (normal) animals very slight pathologic changes were found, which consisted of indefinite staining of the cytoplasm of the pancreas and liver. These changes were very slight and could not be classed as definite degeneration. These two animals were young pigs about four and six months old. The others were all adult animals. In the other twelve animals (unlesioned) no changes were found.

From this control test, which seems to show the methods and technique fairly reliable, the fact that the control animals showed practically nothing pathologic and the fact that nearly all of the lesioned animals did show pathologic changes, we feel that we have reliable information from which to draw our conclusions.

Conclusions

The conclusion of a written problem should consist of a definite answer to the question or questions named in the beginning, but for reasons stated above this cannot be done with all of the problems under consideration because this work is not complete in any sense, and this report is only preliminary. From the evidence at hand it seems safe to conclude the following:

1. That interosseous lesions are accompanied by, and in many cases at least, are causative of definite morphologic changes in other organs. Glandular organs seem to be affected to the greatest degree and the more highly differentiated the organ the greater the degree of pathologic change. Our work so far confirms the findings of Dr. McConnell in all except that his animals seemed to show more progressed changes than did ours. A probable explanation of this difference has been offered.

2. In most instances the affected organs derive their nerve supply from the lesioned region, thus indicating that the cause of pathologic change lies either directly or indirectly in an impairment of the nerve functioning. These changes may be due to an impairment of the so-called trophic function of the nerve, but the fact that organs other than those under immediate nerve control of the lesioned region are also affected would suggest that some of the changes at least are due to an impaired blood supply, or other "internal environmental" disturbance which I think we do not yet understand. It is our opinion that the latter explanation is more probable.

3. The time required for morphologic change to develop varies with the kind of structure involved, the nature and intensity of the interosseous lesion, the age of the animal and the resistance of the animal. In young animals and in some adults, beginning changes have been observed in from seven to ten days.* We have observed that young and poorly nourished monkeys show changes sooner than older and more healthy monkeys. The same is true with guinea pigs and pups. Some adult rabbits and pigs show little or no change until from one to two months after lesioning.

* Dr. McConnell has found changes in nerve tissue earlier than this.

4. The nature of the resulting morphologic change seems to depend upon the length of time the animal has been kept "in lesion," the kind of tissue affected, the nerve relation to the lesioned area and probably other conditions.

The characteristic changes are, we believe, not the well developed degenerations, but the fact that there is such constant evidence of slight changes—beginning changes which could act as predisposing causes to malnutrition, and these changes may constitute in themselves the initial cause of the more marked changes. This, we believe, is characteristic of osteopathic pathology.

Summary and Application of Principles

It must be understood that the work of research is necessarily very slow. Years of experience are required to teach us what should be done and how to do it. It is not a single fact, but the correlation of a great number of facts that will make safe conclusion possible. From our experience it seems that we are just now arriving at a point where definite osteopathic research should begin. By comparison of our studies in osteopathic physiology with the findings of Dr. McConnell, and our work in osteopathic pathology it will be seen that the various findings point to certain common conclusions. Many of the findings of various perversions of function resulting from interosseous lesions may now be explained by the fact that there is an actual pathologic state which, while in some cases it is very slight, is sufficient to constitute a cause.

The study of progressive pathology, that is, the progressive changes that do or probably would occur from a given cause is difficult or even impossible in most instances, because the tissues cannot be had for study without killing the animal or doing an operation which would be likely to affect further change. Some information can be gained, however, by a comparison of the physiological and the pathological perversions. By such comparison we have evidence that interosseous lesions long maintained are causative of progressive pathologic change.

Comparing the results of our studies of the stomach, for example, we find that those animals kept "in lesion" for the greatest length of time, show the most marked pathologic changes. Examination of the gastric contents of animals "in lesion" shows first a condition of hyperacidity and later hypoacidity, which would be expected if the pathologic changes are progressive.

In our "pancreatic" dogs the diabetes developed slowly but progressively from week to week, in most cases showing a constantly increasing amount of sugar elimination for from two to nine months.

We have observed that manipulation of the lower thoracic region causes a variation in the kidney output and that albuminuria frequently develops within 24 hours after lesioning in this region, but these observations in themselves constitute no definite proof of the effect of lesions of this region. This added information, however, the progressive increase of albuminuria, with other chemical and microscopic findings in animals in which lower thoracic lesions have been maintained, together with the findings that such animals show a definite pathologic state of the kidneys, furnishes evidence, which can scarcely be doubted, of the progressive influence of such interosseous lesions on kidney function.

In some of our work the study of the relation of spinal lesions to nutrition and resistance it has been found that animals lesioned in the mid-thoracic region seem to show the most marked nutritional perversions. A study of the pathology of animals lesioned in this region shows that the pancreas, liver and duodenum are quite constantly affected, and that the changes are definite and progressive. We see, then, that the findings agree, because these glands have most to do with digestion, and surely there could not be normal nutrition without normal function of these essential glands.

These slight changes constituting what may be called functional pathology, probably are more far reaching in their effects than other research workers have observed. Pancreatic diabetes, as we have observed in series No. 4, could be caused by a slight so-called "functional" pathologic state of the pancreas probably not sufficient to be classed as gross pathology. If such cases could be diagnosed early, before gross pathology has developed and the cause (interosseous lesions) corrected, surely there

should be recovery. Doubtless many other of the visceral functional perversions as have been shown by research in physiology to result from spinal lesions can be explained in terms of ultra-microscopic or functional pathology.

From the work of Dr. McConnell, confirmed by Dr. Nicholson, direct pressure on nerve trunks in the spinal foramen seldom if ever constitutes a cause of either physiologic or pathologic perversion unless there is a complete dislocation. Dr. McConnell has shown that pathologic changes occur in nerve trunks and ganglia, distal to the lesion. Dr. Nicholson has shown that chromotolysis (in the cord) occurs central to the lesion, and in several of our series we have observed that much reflexed perversion results from interosseous lesions. From these facts we may conclude: First, that the lesion must constitute a definite cause; second, that a correction must be obtained to relieve the reflex perversion and, third, that correction must be maintained for a sufficient time to allow a normalization of the pathologic state in the cord and ganglia before normal function or cure can be had. This we believe is definite and valuable information to the practician.

Let us consider a practical problem in the light of our present information from research, viz., perverted function of the kidney. First, it has been quite definitely shown (see several experiments mentioned above) that interosseous lesions of the lower thoracic region do cause perverted function of this organ. It has also been shown that their function can be varied by manipulation in this region. Second, it has been shown that permanent lesions of this area are followed by definite pathologic changes in the kidney structure and third, there is a pathologic state (chromotolysis) of the cord segments from which the nerve fibers arise which supply that organ. The underlying pathology understood, the diagnosis and treatment are made scientific.

Our need, therefore, is for more definite information concerning osteopathic physiology and pathology, and in this way only can we ever hope to have a positive science and thus avoid that destructive empiricism which has ever been a hindrance to medical progress.

Goddard Bldg.

Reflex Therapy and Osteopathic Technique

Dr. Francis A. Cave, Boston, Mass.

(*Paper read before the New York Osteopathic Society at Utica, Oct.* 26-27, 1916).

You will perhaps pardon the injection of a bit of extraneous philosophy into a somewhat technical paper, but a few words of Confucian wisdom seem to me so apropos of the present discussion that I am constrained to make use of them at the very outset.

"When you know a thing, to hold that you know it; and when you do not know a thing, to allow that you do not know it; *this is wisdom.*"

It was only because the dear "Old Doctor" had the faculty for reasoning with himself, and criticising himself, if need be, that the "Philosophy of Osteopathy" was born of his questioning brain, and to-day constitutes practically the entire philosophy of medicine. The great biological principle enunciated in the epigram "The rule of the artery is supreme," and the peerless therapeutic system included in the axiom "Find it, fix it, and leave it alone," convey to the thoughtful a picture of open-mindedness searching for truth, *and finding it.*

But the Old Doctor has always counselled us to reason back to nature, to dig deeper and deeper into the mysteries of anatomy, physiology and allied sciences and thereby

make our philosophy "As broad as the universe." And so it is that the underlying *principle* which he enunciated for the healing of the nations, rather than the mere method of its application, is what concerns us chiefly at the present time.

The osteopathic philosophy cannot be compressed into a simple system of manipulations, but must continually broaden out along anatomical and physiological lines as the intricate mechanism of the nervous system, the auto-protective powers of the living organism, and the very chemistry of life itself becomes better understood through laboratory experiment and clinical experience.

The original application of the osteopathic principle, based upon the concept that "Structure and function are interdependent," was largely a matter of the adjustment of the *gross anatomy* in an attempt to normalize associated structure. Through the natural evolution of the osteopathic philosophy, however, as the years have gone by, the *principle* has been applied to the softer tissues, and even to the manipulation of the blood mass itself, with a constantly broadening field for usefulness for the profession. In other words, the development of the *principle* involved has pointed the way toward a closer and closer study of the *cellular units* of the organism, of whatever character, clearly demonstrating the underlying biological basis of our claims regarding the interdependence of structure and function.

Claiming to be scientific in our pronouncements and assuming that we wish to continue growing in knowledge and usefulness, we have no moral right to blink theories or to ridicule suggested clinical experiences which may perhaps not be in exact harmony with our pre-existing opinions, providing always that they be predicated upon anatomical and physiological possibilities. Let us rather investigate with an open mind, remembering that there was a time, not so many years ago, when the relatively marvelous results of osteopathic treatment were much more difficult to explain scientifically than they are to-day, in the light of recent laboratory investigations.

Within the last few years considerable attention has been given, within and without the osteopathic profession, to the relation existing between certain reflex phenomena and clinical results of a highly satisfactory nature. Although still remaining largely empirical, because of insufficient time for complete investigation, I believe sufficient work has been done to fully warrant further research along these lines, in an attempt to harmonize such demonstrated clinical results with the basic osteopathic philosophy.

Phenomena of Reflex Action

We are dealing with living protoplasm in a multicellular organism controlled by a central nervous system, and in order to lay a proper foundation for the presentation of the theories which are to follow, it appears essential to summarize briefly the biological factors concerned in the organism which we wish to influence, namely, the living human body, more especially in relation to the phenomena known as *reflex action.*

Although undoubted physiological responses can be secured through influences transmitted from the periphery, it appears to be an open question whether such results are secured through *stimulation* or *inhibition,* or through a combination of these two factors. A study of recent investigations in nervous physiology affords some interesting data upon which to base an hypothesis. Starling's Physiology is especially fruitful in suggested possibilities, and I am taking the liberty of quoting rather liberally from various passages relevant to the subject, gathered from several different authors.

> Every vital phenomenon may be regarded as a reaction conditioned by some change in the environment of the animal and adapted to its preservation. In the community of cells forming the whole organism, the defense of any one part must involve the co-operation of the whole community; no change in a single cell of the body can be regarded as a matter of indifference to any of the other cells.
>
> For this subordination of the activities of each part to the welfare of the whole a means of communication is necessary between the various cells. For some of the lower functions the channel of communication is the blood, which serves as a medium for carrying food material from one part of the body to another, or for the transmission of chemical messengers which, when elaborated by one set of cells, may affect the metabolism of cells in the distant parts of the body.

This method of correlating different activities would, however, be too clumsy and slow for the quick adaptation of the organism to sudden changes of environment. Such a rapid correlation can be effected only by a propagation of some molecular change from the seat of incidence of the stimulus to all parts of the body, or to some mechanism controlling all parts of the body.

We can conceive of two or three, or a small number of cells in contact with each other, and that harmonious co-operation might result from this direct physical contact, but the minute we move away from this protean manner of life, and get into the field of larger and more complex organisms, with untold millions of cells having specialized functions and varied structures, we must discard any idea that the co-ordination of such complex organisms can be based simply upon the physical contact between the cells composing them. It is therefore evident that a *central regulating station,* in perfect connection with every minute part of the body, *is a necessity,* and this need is supplied by the nervous system, consisting of the cerebro-spinal and the sympathetic portions.

In considering reflex nervous phenomena we must always bear in mind the close relationship existing between these two portions of the nervous system, which are interdependent anatomically and functionally. Gerrish's Anatomy is authority for the statement that the "gangliated chains are developed as outgrowths from the spinal nerves."

Foster says: "We may say at once, without entering into details, that the whole sympathetic system, with its ganglia, plexuses, and nerves, is to be regarded as a development or expansion of the visceral or splanchnic divisions of certain nerves."

The primary object of a nervous system, therefore, being to ensure the co-operation of the entire organism in any reaction to changes in its environment, it is logical to expect that nature would develop a nervous system in close connection with that layer of the animal life which is in the most immediate relation to the environment, namely, the epiblast, or external layer. Such is actually the case, the central nervous system being developed by an involution of the epiblast, thereby revealing its primitive relations to the surface of the body, which is derived from the same layer of the blastoderm.

It is not necessary that we go into minute details regarding the subdivisions of the nervous system into afferent and efferent portions, or the complete mechanism of its most important function, that of reflex action.

Relation of Nervous System to Reflex Action

From the development of the central nervous system it is evident that the nervous path of every reaction must be made up of two or more neurons. If we take, for example, the simplest possible reaction which might be effected through a single segment of the spinal cord, we see that the afferent impulse might be started by some stimulus applied to the ramifications in the skin of the distal processes of the posterior root ganglion cell. The nerve impulse so started is carried by the nerve fiber past the posterior root ganglion cell into the cord to terminate in the neighborhood of the anterior horn-cells. Here the impulse must be transmitted in some way to the dendrites or body of one of the large motor nerve cells in the anterior horn, whence it is carried along the axon of the cell, leaving the cord by the anterior root and passing down a peripheral nerve to the end-plate on a muscle fiber, voluntary or involuntary, which it then excites in some manner to contract.

The character of a reaction to any stimulus, applied to the surface of the body, is determined by the course which the impulse, excited in the afferent nerves, takes upon its entrance into the central nervous system. This course is laid down by the connections through which the nerve impulse passes. In the central nervous system, therefore, more than in any other part of the body, *function is directly dependent upon structure.*

Theoretically, therefore, if we had a perfect knowledge of the connections of the neurons in the central nervous system and knew the fibers affected by any given stimulus, we should be able to prophesy exactly the results of such stimulus. In the case of the simpler reactions this is already possible, but in the higher parts of the nervous system the enormous complexity of the systems of neurons excludes any possibility of our forming more than a general idea as to the nerve paths traversed in any given reaction, and the variations which exist from individual to individual must always prevent, in the intact animal, an absolute prediction of the results of any stimulus.

When we study the structure of the central nervous system more fully we find that, although there are certain shortest possible paths (i. e., ones involving few neurons) for every impulse arriving at the center, yet so extensive is the branching of the entering nerve fibers and so complex are the

neuron systems with which they come in connection that an impulse entering along one given fiber could be spread to practically every neuron in the spinal cord and brain. This possibility is clearly proven, for instance, in animals poisoned by strychnine, which shows strong tonic spasms of the entire musculature of the body in response to even the slightest stimulus applied to any part of the skin.

In normal animals, likewise, an infinitesimal stimulus, traveling up a few nerve fibers, may excite widespread activity of the whole central nervous system, with the discharge of impulses along practically every nerve of the body. Thus, the presence of a crumb on the larynx will excite impulses traveling up the superior laryngeal nerve to the sensory center and produce spasmodic contractions of almost every muscle in the body.

We see, therefore, that every sensitive point on the surface of the body impulses can be initiated which will set into action whole chains of neurons, and have a widespread influence throughout the central nervous system.

In other words, *every single nerve fiber can discharge into every motor neuron of the cord,* providing the stimulus is sufficiently powerful and long continued. That this result does not ensue on continued localized stimulation in a normal animal is dependent upon the *varying resistance* to the passage of an impulse into the several neurons with which the entrant fiber comes in relation.

One of the most fundamental facts regarding spinal reflexes is the demonstration that they can be depressed or suppressed entirely—that is, *inhibited*—by other impulses reaching the same part of the cord.

As a rule, if two stimuli be applied simultaneously at different points, the reaction which ensues will not be a combined one, the resultant of the reactions which would normally be conditioned by each single stimulus, but will be a response to one of the stimuli, which we must therefore regard as the more effective. The reaction to the other stimulus is either *abolished altogether* or comes on after a considerable period of delay.

In physiological terms we should say that *every effective reaction inhibits every other reaction.* For instance, in the spinal cord of the frog the normal withdrawal of the foot in response to stimulation of the toe of the same side can be inhibited by strong stimulation of the other sciatic nerve, or by stimulation of the spinal cord at a higher level.

A similar interference is illustrated in the well known device of inhibiting an act of sneezing by a strong sensory stimulation from some part of the skin—for instance, by pressing the upper lip.

What Laboratory Experiment Shows

Laboratory experiment shows us that one stimulus may reinforce another if the reactions ensuing on the two stimuli are allied —i. e., tend to co-operate one with another. In every case, however, an afferent impulse entering the cord and spreading to a motor mechanism, so as to produce a co-ordinate contraction of various muscles, causes at the same time *inhibition* of the muscles antagonistic to the movement, and also *inhibition in all other reflex arcs of the cord.* A moment's thought will clearly show us why this should be so.

The surface of the body is being continually played upon by ever-changing stimuli, tending to excite first one reflex and then another, and the activities so excited would produce confusion in the conduct of the animal if there were not some means by which at any one time only one reaction should be in the act of being carried out. The imperative stimulus should dominate the actions of the body as a whole.

Just as, in the mental world, attention must be undivided if we are to avoid confusion of judgment, so in the lower nervous activities there must always be concentration on one act or another. There may be a struggle of different stimuli, but one must finally be prepotent and annul altogether the influence of the others.

In other words, the central nervous system can apparently attend to only one thing at a time.

Thus far we have considered reflexes only in their relation to movements of the skeletal muscles in response to cutaneous influences, but Foster's Physiology gives authority for much more complex possibilities when he says:

We have dwelt upon reflex action in which the afferent impulses cause contraction of skeletal muscles, since these are undoubtedly the most common and the most prominent forms of reflex action; but it must not be forgotten that the efferent impulses of reflex origin may produce contraction of other muscles, as well as other effects, such as secretion, for instance.

The *other* muscles here referred to can be no other than the *involuntary* muscles of the vessels and viscera, so we have here some definite statements from the works of a famous physiologist as to the possibility of cutaneous irritations causing reflex contraction of unstriped muscle, or secretion

in the glandular elements of the viscera. This points the way directly to reflex vasomotor action as well as glandular activity in response to peripheral influences, and opens up a simply tremendous field for scientific speculation and research.

There is a tendency upon the part of some of us to consider osteopathy as a system pertaining to mechanical adjustment of the osseous structure. Should we not rather think of it as a comprehensive philosophy based upon the relation existing between *structure and function* even down to the tiniest cell in the organism? The latter viewpoint opens up channels for research along most fascinating lines and surely must develop us into more useful physicians with ability to benefit a larger number of people.

As an evidence of therapeutic progress along these lines we are reading more and more of the somewhat startling results secured through reflex nervous phenomena induced by pressure or irritation of the cutaneous and peripheral nerves, either through direct action upon the specific nervous tissues associated with that portion of the anatomy which it is desired to influence (such as the sub-occipital area, the sacral or spinal nerves), or through influences applied at points remote from the desired seat of activity (such as the fingers, toes, buccal or naso-pharyngeal areas).

There appears to be good physiological authority for all of these methods, which are in no way out of harmony with the basic osteopathic concept. Dr. A. T. Still makes repeated references to the beneficial effects of pressure upon various nerves. In his autobiography he makes mention of a useful experience in the following words:

> One day when about ten years old, I suffered from headache. I made a swing of my father's plow-line between the trees, but my head hurt too much to make swinging comfortable, so I let the rope down to about eight or ten inches off the ground, threw the end of a blanket on it, and I lay down on the ground and used the rope for a swinging pillow. Thus I lay stretched on my back with my neck across the rope. Soon I became easy and went to sleep, got up in a little while with headache all gone. As I knew nothing of anatomy, I took no thought of how a rope could stop headache and the sick stomache which accompanied it. After that discovery I roped my neck whenever I felt those spells coming on. I followed that treatment for twenty years before the wedge of reason reached my brain, and I could see that I had suspended the action of the great occipital nerves, and given harmony to the flow of arterial blood to and through the veins, and ease was the effect.

In his book on "Research and Practice" he enlarges somewhat upon the foregoing rather rudimentary treatment when he says:

> For continued or periodic headaches I begin in every case at the occiput by laying my fingers flat on the back of the neck, over the occipital nerves. Here I bring a gentle and firm pressure for a few minutes during which time I find the neck muscles relaxing under my fingers on both sides of the neck from the base of the skull to the fifth cervical vertebra. After this inhibition I place my fingers on the transverse processes of the atlas, axis and upper cervical vertebrae, etc., etc.

Reminiscences of the Old Doctor

I am indebted to Herbert Bernard, D. O., for some personal reminiscences of the Old Doctor along these very lines. In a recent letter he tells me that he has many times heard him say, for instance, "Find the cause of the trouble, then find out the nerve and blood supply, and then press on the nerve to relax the area and inhibit the pain until you can fix the lesion." Going over to the Old Doctor's house one day he found him lying under an old apple tree in the back yard with his head resting upon a rope swung from one of its limbs, the rope clinging closely to the sub-occipital area. Asking him the reason for the rope he replied:

> "This is my counter-irritant rope." Asking him to explain further, he said: "There are a lot of sensory areas in your body, but, like a lot of children, they must be well nourished to make them behave. You see, these suboccipital babies of mine are crying for something to eat, and the old mother artery doesn't know it, because she sent them their breakfast some time ago, but something got in the way of their getting it. When some of you boys find out how to fix this bone in my neck then I will not have to press the babies until they stop crying. Now you run along and study the suboccipital area, and maybe you'll find out what I mean."

Inquiring the next day if he had stopped the babies crying, he said, "Yes, the rope partially paralyzed them by interrupting their cry, which was going through the axis cylinder." He simply meant that by mechanical pressure he had interrupted the normal irritability of the sub-occipital area until a partial anesthesia had been created.

Again, in his description of technique for the reduction of dislocated femur, the Old

Doctor speaks of "pressure under the great trochanter" as suspending sensation in the limb. Many references to such inhibitory technique are to be found in his various writings, so that we are by no means unorthodox when we give thoughtful study to such methods of controlling pain. A successful inhibitory technique likewise makes unnecessary the usual appeal to anodyne or anesthetic drugs, clearly proving the basic osteopathic contention that "the better the knowledge of anatomy and physiology, the less need for drug medication."

Without attempting to give even a brief compilation of the writings of other osteopathic investigators, there remains one very radical procedure of which but little has been said, but which by its very audacity should at least encourage open-minded investigation. I refer to the so-called "sacral work" as first presented by George W. McPherson, D. O., at the annual convention of the New England Osteopathic Association held in Springfield in 1910, and reported in a general way in the A. O. A. JOURNAL for August of that year. I am fully aware that his technique has brought forth much unfavorable criticism, but inasmuch as I can find nothing contrary to physiological teachings in its use, it seems only just to mention it briefly in this present paper. (The reader is referred to the A. O. A. JOURNAL above mentioned).

In preparing my paper and referring to this unusual technique it seemed wise to inquire of Dr. McPherson as to whether he is of the same opinion to-day that he was six years ago, in 1910. His response to my inquiry was as follows:

> I can only add to my previous article that I am more convinced that the truth of osteopathy is expressed through sacral work.
>
> I am building a practice wholly on the merits of sacral work, and I would be pleased at anything you might say to the New York Osteopaths in convention on this work, as it is my one desire that some day Osteopaths will become sufficiently interested to investigate.
>
> I firmly believe that without sacral work it is impossible to secure the physical integrity of the body.

These are surely very sweeping statements, but why not worthy of investigation and trial, rather than ridicule without proof of failure? The broad claims of orificial surgery are likewise predicated upon removal of irritation around the sacral nerves, and appear at first glance just as incredible as those made by Dr. McPherson.

It should be remembered that the two lateral chains of the sympathetic ganglia become joined just in front of the sacrococcygeal articulation, also that there is a very close relationship existing between the sacral spinal nerves and the pelvic sympathetics, so that a slight mal-adjustment and consequent nerve irritation in that area could very easily become transmitted to the entire sympathetic and spinal nervous mechanism.

Zone Therapy Method of Securing Reflex Nervous Effects

Within the past three or four years the medical world has been galvanized into amazement by the claims made for a method of securing reflex nervous effects through pressure or irritation upon the fingers, toes or naso-pharynx, a method commonly known as "zone therapy," and one which seems to me to be based upon the fundamental principles underlying the osteopathic philosophy and in harmony with its normal evolution. A closer study of this system or method should interest every earnest seeker after physiological truth, remembering always that "the impossible is merely the thing we have never seen done."

"Zone Therapy" is the unique conception of Dr. William H. Fitzgerald, of Hartford, Conn., a regular physician of the highest standing, by temperament a scientist and humanitarian. Graduating from the University of Vermont, he spent two and a half years in the Boston City Hospital, two years in the Central London Ear, Nose and Throat Hospital, and a like period in Vienna, where he was assistant to Prof. Politzer and Prof. Otto Chiari, who are known wherever medical text books are read. For several years Dr. Fitzgerald has been the head of the nose and throat department of St. Francis Hospital in Hartford, and is generally recognized as one of the great throat and nose surgeons of this country.

Having had the pleasure of a personal acquaintance with Dr. Fitzgerald and seen him apply his treatment in a large number of cases, it becomes an agreeable duty to transmit to you, as best I can with a limited

experience in this line, the fundamental principles and technique of his methods, reserving to myself the liberty of quoting from time to time from material already printed regarding it. Much of this I must of necessity give without comment, for the reason that personal opportunity has not presented for testing it in toto.

Dr. Fitzgerald does not advance any theories explaining his discoveries. He says he did not start with any hypothesis, but deals only with demonstrated facts. Some six years ago he found by accident that pressure on a certain spot in the nostril gave practically the same result as the use of cocaine. He began experimenting and found that there were many spots in the nose, mouth, throat and on the tongue which, when pressed firmly, deadened certain areas to all sensation. He began using nerve-pressure instead of local anesthetics, and now rarely has use for cocaine. Success in the field of nose and throat work led to activities in other fields, until he is ready to proclaim the fact that a wide range of diseases or conditions in all parts of the body can be reached through his methods.

Application of Zone Therapy

In "Zone Therapy" the body is arbitrarily divided into ten longitudinal zones, five on each side and including the median line. The words arbitrarily divided are here used advisedly, inasmuch as it appears necessary to entirely ignore the usual factors of nerve origin and distribution, arterial and venous supply, muscular attachments, etc., but to keep strictly in mind the location and boundaries of the various "zones" to be herein described.

The first, second, third, fourth and fifth zones begin in the toes and end in the thumbs and fingers, or vice versa, the zones corresponding in number to the numbers of the fingers and toes. For instance, the first zone extends from the great toe up the entire height of the body from front to back, across the chest and back and down the arm into the thumb, or vice versa. Pain in any part of the first zone may be treated by pressure over the first joint of the great toe, or the corresponding joint of the thumb, or by pressure over any resisting bony surface within that zone.

Should this pressure be limited to the *upper surface* of the great toe the effect will extend *up the front* of the body to the fronto-parietal suture, also across the chest and down the *anterior* surface of the *first* zone of the arm and thumb, and sometimes on the thumb side of the index finger. Should the pressure be made on the *under* surface of the great toe, the effect will extend along the first zone in the *sole* of the foot, and *up the back* of the leg, thigh, body and head in that zone to that same suture, also across the back and down the *posterior* surface of the first zone of the arm and thumb, and often the thumb side of the index finger.

Pressure on the *end* of the great toe or the tip of the thumb will affect the *entire* first zone. Firm pressures on the *tips* of the fingers or toes control individual zones. *Lateral* pressures on thumbs and fingers or toes will affect lateral boundaries of zones, also transverse extensions to nostrils, lips and ears.

Pressures average from one-half minute to four or even ten minutes or longer, depending upon the susceptibility of the patient, and may be made with sharp-pointed applicator, thumb and finger nails, or metal comb having about ten teeth to the inch. Pressures with elastic bands on fingers, toes, wrists and ankles, also knees and elbows, are often useful in overcoming pain in an individual zone or group of zones. An ordinary spring clothespin may often be used to good advantage on the fingers or toes where prolonged pressures are necessary.

All zones must be free from irritation and obstructions to get the best results. For instance, if there is pain in the head, thorax, abdomen or extremities in one or more zones it may be relieved or quite overcome by pressure on resistant surfaces anywhere in the zones affected. If the pain is relieved for a few moments only, and repeated pressures do not overcome it, it is safe to assume that the pain is due to some abnormal pressure or irritation, as pus, impactions, necrosis, etc., somewhere within that zone demanding surgical or other interference. This peculiar feature appears to open up a new method of at least corroborative diagnosis. For instance, an abscessed tooth cannot be controlled by these

pressure methods, the pressure simply causing an increase of the pain, or at least a very brief diminution. Similar results have been found in many cases of pelvic tumors, pus tubes, etc.

Pressure with the thumb and index finger on the upper or lower jaws in any of these zones will relieve pain in any part of that individual zone. Pressure on the *anterior* surface of the jaws controls the *anterior* sections of zones one, two, three and four, while pressure on the *posterior* surface of the jaws controls the *posterior* sections of these zones.

Pressure with the thumb and finger on the inferior dental foramen (reaching the inferior dental and lingual nerves) will anesthetize that half of the jaw, and to a greater or lesser extent, the entire side of the body being compressed. Pressure with the finger tip on the anterior palatine foramen will reach sensory branches derived from Meckel's Ganglion, and influence *first* zone structures and teeth in that vicinity.

The tongue, the hard palate, soft palate, and the posterior walls of pharynx are likewise divided into five zones, likewise the lips. The liver and spleen are in the fourth zone, the stomach in the first, also the nose. The dorsum of tongue corresponds to the anterior area, similiar to the dorsum of the hand or the top of the foot. Pressure on lower jaws at angle will affect lower half of ear. Pressure on upper jaw will affect upper half of ear.

Importance of Pressure in Proper Zones

It is of the greatest importance that pressures be made in the proper zones, and for the proper length of time, else the treatment is of no avail. For instance, it would be useless to squeeze the first zone thumb when the trouble was in the fourth zone ring finger area, and equally useless to squeeze the left zones for a trouble on the right side of the body. We could not hope to relieve a fourth and fifth zone sciatica by putting pressure on the first zone great toe, nor relieve eye strain by pressing the little finger instead of the index finger.

This nerve pressure work is not infallible. It does not work in every case, but neither does morphine. Dr. Fitzgerald has found that nerve pressure will completely obliterate pain in about 65 per cent. of the cases, while it will deaden it in about 80 per cent. In the hands of others who have tried nerve pressure in this manner the percentage of successes is often very much lower, because they have not as yet learned how to apply it.

Dr. Fitzgerald's work proves one fundamental principle which cannot fail to be useful to all physicians of whatever school. He found that work which *tended to relieve pain* also tended *to remove its cause,* no matter what the origin. The assertion that pressure on the great toe could cure toothache became pale compared with the statement that this same pressure would relieve bronchitis.

This brings to mind the statement of an eminent French surgeon in the present war to the effect that "Fatigue could be so profound that complete muscular relaxation of the soldier often prevented him from feeling the pain from a bullet wound," hence the spectacle of a badly wounded man who knew nothing of his injuries until told by others. In other words, this French surgeon summed up the situation upon the theory that *"there can be no pain without muscular contraction,"* and this would seem to be the keynote in much of the pain-relieving work of the osteopathic physician, the sacral worker, and the zone-therapist. First of all, secure your muscular relaxation and diminution of pain will follow as a natural sequence.

Much of Dr. Fitzgerald's work overlaps the already demonstrated field of osteopathy. For instance, his treatment of hay fever includes the forcible stretching of the soft palate and neighboring parts with the finger tip, but with the unique addition of pressing with a probe upon different areas of the tongue and pharyngeal wall, which latter process appears to be an original procedure. In this connection it is interesting to note the relationship between the nasal mucosa and the pelvic sympathetics as discussed by Dr. Byron Robinson in his admirable work on the "Abdominal Brain." A study of these reflexes opens wide the possibility of reaching remote parts of the body through influences applied to the nasal mucosa.

The treatment of goiter has shown some rather remarkable results, and I have per-

sonally examined and conversed with several of these patients. Not infrequently a goiter will become reduced two or three inches in as many weeks under his care, and benefit is secured in practically every case. The feeling of suffocation, rapid heart action, and the distressing nervous symptoms of goiter can be largely overcome by means of a probe passed through the nostrils and applied to certain points on the posterior wall of the pharynx. He declares he has never seen a case of goiter in which there was not something wrong with the teeth.

Relation of Zone Therapy to Dentistry

Speaking of teeth brings up the subject of dentistry, and here is where "Zone Therapy" is said to shine with especial brilliancy, although I have no personal knowledge of its efficiency in that line, except in a few cases of neuralgic toothache in which I have succeeded in relieving the patient greatly.

In de-sensitizing the teeth the best results seem to be obtained through the use of a probe applied directly upon the exit of the nerves at the tuberosity of the superior maxillary, or the inferior dental foramen, although pressure by the fingers will give good results. Some dentists prefer to make pressure with the thumb and finger over the root of the tooth to be operated upon. Try this some time when you have an aching tooth. Start gently, increasing the pressure and holding steadily for about three minutes. If the nerve is not exposed and there is no abscess at the root, this pressure will stop the pain almost every time.

The dentists who use this nerve-pressure method find the application of pressure to the fingers very efficacious for excavating, filling and scaling deposits of tartar. The patient may apply the pressure himself, but the dentist or his assistant can do it better. The degree of this pressure should be *just short of pain,* and creates a numbness in the fingers which gradually extends through the arm and over the body in that particular zone.

The late Dr. Myrell Plummer personally advised me that he was securing very excellent results in his nose and throat work by having his patients press with the finger tips upon the hard wooden bottom of the chair in which they were sitting while having his treatment. His claim was unqualified that a considerable degree of de-sensitization took place by this simple method.

Effects may sometimes be accentuated by the use of the galvano-cautery, the contacts being made immediately after shutting off the current. These contacts should be momentary but manifold, and applied to certain points in the mouth, pharynx, epipharynx or nose, or upon the edges or sides of the teeth themselves. Dilute spirits of camphor, or trichloracetic acid (50 per cent.) are also sometimes used to secure an enhanced effect. For this reason the term "pressure anesthesia" does not fully describe these methods, it being an open question whether the results are secured through inhibition, stimulation or altered lymphatic and circulatory conditions.

Quoting from Dr. Fitzgerald we read:

> We are repeatedly called upon for the theory of zone therapy. Many theories are interesting, but not conclusive, and rather than be obliged to retract theories we are not going to attempt to advance them, except very superficially at the expense of clinical facts. It is certain that control centers in the medulla are stimulated as has been suggested; it is equally certain that these centers are easily shocked.
>
> We know that we induce a state of inhibition throughout the zone where pressure is brought to bear. We know that when the inhibition of irritation is continuous many pathological processes disappear. We are certain that lymphatic relaxation follows pressure. Dr. Bowers' theory is that inasmuch as there are admittedly ultra-microscopic bacteria, it is more than likely that, in the light of this work, there are ultra-microscopic connections analogous to those we call nerves. Man is admittedly of chemical formation controlled by electrical energy.

If results are not secured within a given time prolong the pressure. Results can frequently be secured within from one-half to four minutes, but some of our best results have been secured by using pressures from ten to twenty minutes.

It is claimed that childbirth has, in many instances, been made comparatively painless by pressures applied to the soles of the feet, a method surely in harmony with the instinctive demands of the occasion. It seems almost incredible, also, that the painful operation of paracentesis may be performed in comparative comfort after the application of pressures upon the proper focal points within the post-pharyngeal area.

Additional light upon the close and important relationship existing between the nasal mucosa and the sympathetic system is found in Sajous' work on "Internal Secretions," as follows:

Preceding its true action as an anesthetic is a short period during which, owing to the irritating action of the chloroform vapor upon the nasal mucous membrane, the heart may be arrested reflexly. The sensory impulses being transmitted from the nasal mucous membrane to the vaso-motor center and thence to the cardiac coronaries, these vessels are constricted sufficiently to deprive the cardiac muscles of the blood required to carry on their functions adequately.

The irritating influence of chloroform on the nasal mucosa and the danger of reflex cardiac arrest therefrom is generally recognized, and has been demonstrated experimentally. Thus, Guerin found that if a rabbit be made to inhale chloroform directly through the trachea after tracheotomy, the heart is in no way affected. If, however, the animal be made to inhale it through the nose, the heart is arrested.

Ether being a violent irritant, the danger of causing reflex arrest of the heart can be prevented by spraying a 10 per. cent solution of cocaine into the nasal cavities about ten minutes before the administration of the anesthetic is begun.

Examples of Specific Technique

A few examples of specific technique will suffice to show the wide range of application of this newest nerve-pressure philosophy, but an understanding of its basic principles is the primary essential, just the same as in the osteopathic field itself.

General relaxation of all zones may be secured by having the patient clasp the fingers at the points of intersection of the second and third phalanges, or by firmly pressing the tips of fingers of both hands together, or by firmly biting for several minutes upon all surfaces of the upper and lower teeth.

Headaches and *neuralgias* of purely nervous origin (not due to auto-intoxication, alcoholism, tumors, eye-strain, or specific organic disease) may be reached by pressures with thum or smooth knife handle against the roof of the mouth, as nearly as possible under the ache, for from three to five minutes. It may be necessary to include quite an extensive area in the pressure. The "points of attack" may extend from the roots of front teeth (for frontal headache) to the junction of hard and soft palates (for pain in back of head). Pressure on joints of thumb and fingers also indicated.

It is important to note that the same condition in the same patient may not be cleared up from the same point every time. If one point of attack within the zone does not yield results try another and another until relief is secured.

Lumbago is treated by pressures exerted upon all five zones of both sides through fingers or toes. The most convenient method, perhaps, is to make use of small aluminum combs held in the hands of patient with the teeth against the palmar surfaces of fingers, back of comb resting in palm of hand. Pressures of from ten to twenty minutes should be employed. Another method is to begin operations on the tips of thumb, first, second and third fingers, gradually working up to the palms of hands and wrists. Spring clothespins fastened to the finger tips are also useful, likewise rubber bands around the finger joints. The latter must be used with care in order to avoid strangulation.

Facial neuralgia. Place a piece of metal between the teeth and let patient bite on it. Also pressure on inferior dental foramen (for lower jaw conditions).

The tongue itself has five zones on each side of median line. The *upper* surface controls *anterior* zones, and the *under* surface controls the *posterior* zones. The floor of mouth reaches *anterior* zones.

Engorged turbinates treated by pressure on mesial side of forefinger. *Engorged septum* reached by pressure on external side of thumb. Both of these are useful in *hay fever. Nasal duct* reached by pressure between thumb and first finger, using web pressure. *Outer canthus* reached by using web pressure between first and second fingers.

The *eye* may be anesthetized by pressure on index finger. Useful in extracting foreign particles from the conjunctiva, lancing abscesses, etc.

Dysmenorrhea, amenorrhea, menorrhagia reached by pressure on posterior half of tongue within the first zone, also upon roof of mouth.

Constipation reached by pressure on posterior third of tongue, pulling forward and downward, for a period of eight or ten min-

utes. (This result is doubtless through the agency of pneumogastrics).

Catarrhal deafness reached by firmly compressing occlusal surfaces of third molar teeth on one or both sides of jaw, varying as one or both ears are involved, also by pressures with curved applicator or finger tip directly behind third molar teeth, at angles of jaws in mouth. Pressure on lower jaws at angle will affect lower half of ear, pressure on upper jaw will affect upper half of ear. Pressures on the fourth and fifth zones of tongue, directly in front and to the side of anterior pillar of fauces on the side affected, drawing the pillar at an angle of 85 to 90 degrees, will have an immediate and satisfactory results in most forms of deafness. Marked pressures or stimulating strokes on all surfaces of all joints of second, third, fourth and fifth zones, especially the palmar surfaces, will usually improve conditions of deafness. Use of probe in posterior pharynx has also given good results in the hands of various osteopathic practicians.

For *wry neck* use posterior surface of anterior pillar of fauces. For *tonsillitis* apply pressure to inferior dental foramen. For viscera *above waist line* use the fingers, for viscera *below the waist line* use the toes. For *appendicitis* use two, three and four zones of fingers and toes, also same zones on tongue.

Gastric ulcer reached by naso-pharyngeal pressure to right of median line. For *water on knee* us all five zones, fingers and toes. *Loss of voice,* finger pressure with comb, also applicator to naso-pharynx, tongue depressor to zones of tongue and soft palate. *Enuresis,* first and second zones with tongue depressor. *Gall stones* reached by dorsal surface index and middle fingers of right hand. *Tinnitus aurium,* same as in catarrhal deafness. *Neuritis* reached by pressures on fingers or toes in zone indicated by pain. To locate proper zone stretch arm out straight from shoulder and approximate zone by fingers.

Case Reports

(1) Hacking cough of several years' standing, reached and eradicated in one treatment by means of probe to post-pharyngeal area, probe being tipped with cotton and dipped in dilute solution spirits camphor.

(2) Acute dysmenorrhea quickly relieved by "web pressure" between thumb and index finger.

(3) Pressure on first joint great toe dissipated intense intractable neuralgic pain in knee. Pressure applied for ten minutes.

(4) Dust in eye. Unable to turn lid on account of irritation. Pressure three and a half minutes on index finger, lid turned, object removed. Another case with much inflammation relieved by pressure with spring clothespin for ten minutes, lid turned and metal shaving removed from conjunctiva.

(5) Seasickness prevented by clasping hands and making pressure upon sides of fingers, changing to include little finger and thumb every ten minutes. No seasickness reported. Patient advised friend to do likewise. Trip from Nova Scotia to Boston without seasickness.

(6) Rotated fourth rib. Left side very tender, unable allow palpation to determine condition. Elastic band around wrist for fifteen minutes relieved tenderness. Palpation, diagnosis and correction of lesion.

(7) Broken tooth. Went to dentist. Made pressure upon ends of fingers. Dentist cleaned broken part and removed nerve without pain.

(8) Sciatica. Left thigh and leg pain severe. Pressure on first four toes with clothespins stopped pain in fifteen minutes, permitting corrective lumbar treatment without discomfort. Cured case.

(9) Neuralgia in inferior dental nerve. Controlled by patient himself by pressure on third, fourth and fifth fingers. No osteopathic treatment.

(10) Brachial neuritis. Severe pain. Very little sleep. Clothespin pressure for five minutes on first four fingers. Patient put hand to head for first time in three months.

(11) Dysmenorrhea. Pain in both ovaries stopped in seven minutes by pressure on soles of feet and palms of hands with comb.

(12) Menorrhagia controlled by stimulating treatment dorsum of feet for four minutes with a comb.

(13) Injured foot in bad fall. Great pain at second and third metatarsal joints. Too painful to bear either touch or motion. Held toes in firm grasp for about three minutes, after which sprained joints were adjusted. Patient could walk at once without pain.

(14) Brachial neuritis. Pain relieved by pressure with clothespin on third and fourth fingers. Patient grealy pleased with benefits secured.

30 HUNTINGTON AVE.

PNEUMONIA

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(*Paper delivered before the Kansas City session of the A. O. A., August,* 1916).

THE subject of pneumonia is so broad and technical that we have not endeavored to be comprehensive but rather practical in relating a clinical experience with 99 cases covering a period of eleven years. Five of this number were taken at the time of crisis, after fatal prognosis had been pronounced by attending medical physicians. With a history of complete recovery in all 99 cases, leaving no bad sequelae whatever, we are on a sound premise from which we have deduced some radical theories.

Medical authors describe pneumonia as a disease running a self-limiting course of three distinct stages, ending in crisis. Under osteopathic management we found no cases ending in crisis except the ones under medical treatment first, and with the exception of a few children who were strong and wilful enough to resist treatment, we recorded no cases with temperature more than five days and that ending by lysis. Fully 90 per cent. of these cases were typical at onset and would have run true to form if managed under medical therapy.

Still greater efficiency of osteopathy is shown in the aborting of pneumonia in 24 to 48 hours, and with fifteen cases in this class we are certain of wonderful possibilities in creating this type. We said "creating" this type, for its rests with the attendant and not the patient whether it shall have this early termination. We have only our early inexperience to blame for not aborting more of our cases since the percentage has been much higher in the last few years.

Even the venerable author, Babcock, says the observations made in his advancing years cause him to be more liberal in his views and to grant the possibilities of this type. But where he admits the type per se we create the type by diligent effort and the osteopathic principle. I wish to recommend Babcock's textbook on diseases of the lungs and to give him credit for several references herein.

Among the etiological factors in the development of lobar pneumonia first consideration must be given to acute coryza and pharyngitis. Half of all persons carry pneumococci in their throats all the time, others during winter and spring, and still others while in the pneumonia environment. The mucus of sputum exerts a highly destructive action on the pneumococcus, hence the small percentage of developed cases compared to the number carrying infection. In acute coryza and pharyngitis the discharge from the nose and throat which at first is muco-purulent later changes to purulent and makes a veritable hotbed for the development of micro-organisms. While most authors give the male sex to be more susceptible than the female this can only be explained by the greater exposure of men and the habit of smoking, which lessens the secretion of mucin.

Fatigue during the winter and spring seasons when infection is most active is a very serious cause for alarm, since the lowered resistance of impoverished blood, temporary paresis of the vaso-motors, and lazy breathing all contribute to this disease. Exposure must be considered, athough a debated question. From our viewpoint of contractured muscles, etc., lowered resistance follows.

Chemical causes are noted by all writers on this subject as smoke, metalic dust, gases, etc. The nearest example of this kind in our history was a single pneumonia following a partial strangulation in the water.

Alcohol is a factor we have not observed practically only as an heritage of weakness given to posterity lowering resistance to all diseases.

One of the most common and active causes of pneumonia is over-eating, causing reflex contractures of the thoracic area, and again the mucus secretion of the mouth is lessened by indigestion or an over-worked stomach. Hulett says: "The cardiac plexus and pulmonary plexus because of the juxtaposition of their ganglia to their respective organs will be subject to lesion directly by abnormal conditions of the thoracic organs." Hence heart and lung disturbances from a dilated stomach.

Occupation lesions of spine and ribs are met constantly among the middle aged and mostly from the fourth to ninth dorsal regions, but I must affirm that sixth to ninth ribs and corresponding vertebrae have been the consistent findings of my experience with lobar pneumonia in middle life. It is

because of the location of these anatomical lesions that the lower lobes are oftenest involved in adulthood.

I remember the interesting case of a trained athlete and wrestler who developed pneumonia two days before a scheduled contest, and despite his good physical condition proved a very obstinate case for his medical attendants, who had been hard put to explain the condition under the circumstances and had suggested poor ventilation of training quarters as only known cause. I received this history from himself several years after, and had the pleasure of locating a luxated ninth rib, and informing him which side the infection was on, both to his surprise and confirmation. He recalled having strained himself on a heavier training partner a few days before the onset.

It is my conviction that the use of one hand more than the other has an influence in these occupation lesions, having had three cases of left lung infection in left handed people. Never, to my knowledge, have I seen a left handed person with right lung infection. Granting the exception of having seen right handed persons with left lung infections, I have found that some of these were influenced by stomach lesions of the left splanchnics.

One of the broadest fields before us as a profession is the work in broncho-pneumonia among children. In no line can we obtain a better clincal record and in no way get closer to the hearts of our clientele than when saving their little ones from this dread disease. This form, when primary, is usually found under the age of five years, but if secondary to the acute diseases of childhood often occurs up to eleven years.

Secondary broncho-pneumonia is more serious following measles because of the tendency to tuberculosis, caused, doubtless, by the greater disturbance of the lymphatic system. While most authors give measles the highest percentage of pneumonia sequelae of any acute disease, I have found that whooping cough heads my list by a big percentage.

Post-operative pneumonia from ether is frequently met, and in these cases the osteopath is just as valuable as the surgeon, for what sufficeth the wielding of a knife if the surgeon cannot safeguard his patient in this complication.

Bruns is authority for the theory that only infected ether is responsible for surgical pneumonia. If this be true there is a great amount of impure ether. I believe that the irritation from the gas causing so much mucus in the bronchi together with the inhibited state of the bronchial nerves from the anaesthesia and pressure from fixed position furnish the etiology of this type. A very good precaution advised by Hoelscher is to place the patient in a position to secure drainage of the throat and mouth secretions.

If the first clinical reports of pneumonia had been made under osteopathic management, and succeeding reports in like manner, pathologists would have described it as a disease of from four to six days' duration, ending by lysis and the long and fatal cases idiopathic or mismanaged.

As stated in my opening this work is more practical than technical, but in all sincerity it must be said that more of our cases ended without grey hepatization than with, so in giving the course of lobar pneumonia we would divide the stages into engorgement, red hepatization and evacuation. In the aborted cases two stages, engorgement and absorption.

In chronic interstitial pneumonia many cases are seen with only a partial cirrhosis and numerous cavities filled with latent infection causing a chronic cough and suspicion of phthisis. On physical examination the base will usually give feeble bubbling rales varying with the stage of process and the area corresponding with chronic rib and vertebral lesions. Persistent work on these lesions will often destroy the remaining infection and complete the induration with gratifying results on the cough and general health of the patient. An illustration of this is shown in an interesting case of partial cirrhosis of right lung following broncho-pneumonia in childhood, female, age 35, asthma following attack and extending to time of treatment. This case received forty treatments from a chiropractor without relief. My treatments began April 19, 1915, ending June 21, 1915, including fifteen treatments in all. Partial correction of seventh and eighth ribs on right side and corresponding vertebrae, induration completed and asthma cured.

There is some difficulty at times in differentiating between the interstitial type and adhesions following pleurisy, but the history of the case will be an aid and also the location of the heart. With very extensive cirrhosis the heart will be misplaced to the right with hypertrophy of the right ventricle

The consolidation of the lung in broncho-pneumonia is less pronounced, congestion being greatest in the lobules or sub-divisions. In some instances I have found it difficult to distinguish a profuse broncho type from the lobar.

General symptoms of the onset of pneumonia are typical, and I need not dwell on these, as you are familiar with them from your texts. In mixed infection or influenza-pneumonia there is usually a warning of several days, and in every case of la grippe, especially in the aged, one should keep a sharp lookout for congested areas and restricted function.

The observation of the blood pressure is especially advised in cases of advanced years, since a lowering of the normal pressure gives an early warning of a weakening heart. In most of my case reports I have found the pressure running five to seven millimeters above normal the first three or four hours and then a rapid return to normal.

The *simple* infection of the pneumococcus is very sudden in its development, and often two hours from the first rigor there will be temperature of 103 or 104 degrees, some nausea and headache, but most pronounced, dyspnoea and ache under scapulae; short, dry cough and anxious look on the face, also a restless first night, with symptoms diminishing the first 24 hours. No responsibility can be attached to family or physicians in the beginning of these cases since they come like a bolt out of a clear sky. Fatigue is the most frequent predisposing cause in these sudden attacks.

The management of broncho-pneumonia in children varies to some extent from the adult cases, depending on the severity of attack and the temperament of the child. My first attention when called is to ascertain the temperature, and if much fever exists bare the torso and examine closely for complications in lobes of the lungs. This exposure also gives opportunity for heat radiation and skin breathing. The younger the child the fewer the osseous and ligamentous lesions and more muscular lesions. If the condition is not too serious and patient's strength too much depleted, I endeavor to establish friendly relations, and after gaining the confidence of the sufferer obtain deep relaxation of the upper spinal muscles and also pectoral muscles. The cervical region should be the last to receive attention because of the tendency on the part of children to become nervous at this part of the treatment. Learn the temperament of the patient, and if feasible give a long, thorough treatment the first time.

One treatment will accomplish more at the onset than three a few days later. There is no special technique in this line of work that I need to emphasize nearly so much as to urge the untiring zeal and grit that makes you accomplish what you are after before you leave the house. After releasing the muscular contractures the whole length of the spine I then spring the spine itself freely and relax the abdominal tissues as much as they require. The last manipulation in the treatment after the relaxation of the neck and throat is a strong pull or stretching of the soft palate to relieve the cough and perhaps through the recurrent laryngeal nerve we are at least able to give much relief in this way. This method is especially successful in the unproductive coughs which sometimes linger several days after the fever has subsided. Restrict the diet in direct proportion to the severity of the attack, withholding all food from 24 to 48 hours, and longer, if necessary.

Digestion will not functionate during leukocytosis while the system is engaged in microbic warfare. Use water enemas for the bowels if constipated, but not at the first visit. Bathing and all mechanical attentions should be omitted near treatment time, as every stimulus detracts from the effect of specific treatment. In my earlier experience I used antiphlogistine and cotton jacket, but now only a thin jacket that

is easily removed and often changed. A wet cloth over the bronchi and an electric heating pad to cover it produce the most favorable results and prevent retensing of the muscular tissues for a longer period. In a few cases of very nervous temperament I have used warm sponging midtime between treatments. I am reasonably certain, however, that in every case satisfactory results can be obtained without any outside aid, excepting possibly the enema for obstinate constipation.

There will occasionally be met a peculiarly stubborn condition in a child where the grave symptoms have subsided and the case drops figuratively into a rut. This condition simulates a delayed resolution except that a slight elevation of temperature is maintained continuously and there is an absence of lysis. This condition is unquestionably due to the method of treatment, that is, lack of specific work, either from oversight or perhaps resistance on the part of the child. At this stage I call for dining table or skirt box, and placing patient on stomach forcibly break up the osseous lesions. This forceful treatment also assists in evacuating the bronchial tubes. Short, hard treatment, followed by 24 to 36 hours' absolute rest is my method in cases of this type. This change I have found invaluable in starting the physiological momentum.

Right here I should like to make a statement for the benefit of the laity and any class of physicians who may be interested. It is absolutely unnecessary for a bronchopneumonia to run into chronic interstitial pneumonia if managed osteopathically.

Lobar pneumonia is just as amenable to osteopathic treatment as the former type, and when found in adults under fifty years of age with an average heart offers an even chance for abortment with that in children, provided the case is seen within the first five or six hours. When seen at onset I ask for an assistant to carry water and administer cold in large quantities; that is, one glass every five minutes. It is a splendid adjunct to the manipulation of the physician. This water treatment is continued long after the patient begs for mercy. Here the physician must be dominant and entirely master of the situation. It may be necessary to forget all thoughts of office practice and give undivided attention to the patient, even if it requires an all night vigil.

The physiological reason for the water treatment is found in the relation of the lymph stream to the circulation. Landois says:

> The lymphatic vessels have the task of collecting the fluid with which the tissues are saturated and of conveying it back again to the blood. If the network of capillary blood vessels be regarded from this standpoint, as an irrigation system which supplies the tissues with nutrient fluid, the lymphatic system can be considered a drainage mechanism, which in turn conducts away the excess of the transuded fluids. The lymphatic system cannot be active at all if the circulation of blood is totally interrupted; it operates only as a part of the whole and with the whole.

Another as important necessity for the copious water drinking is increasing the function of the sweat glands. The centers for the secretion of sweat are distributed throughout the entire spinal axis, hence the general treatment of the whole spine as well as special relaxation at points of ligamentous and muscular lesions, and that is precisely the kind of lesions found in the acute conditions. I hold the osseous luxations primary, but they are predisposing rather than active obstructions. I append a case report of

> Mr. B., Dec. 20, 1907, aged 56, double congestion, severe dyspnoea, temperature 104 2-5, nausea, headache, intercostal neuralgia, pulse 130, and incidentally badly scared osteopath. Gave glass of water every five minutes with all fresh air available; applied treatment from 8 to 10.20 p. m., then symptoms subsided, patient went to sleep, sweat excessively all night without waking, arose normal the following morning with only a slight weakness to account for his experience.

The life of the pneumococcus in moist sputum is about two weeks. Such sputum does not give off bacteria even when exposed to strong currents of air. It is innocuous except to persons handling bedding, etc., which has been recently contaminated. This sputum dries in a few hours, but the dried masses are ineffective for a long time, and may be powdered mechanically by sweeping, brushing, etc., and thus contaminate the air. Fortunately, however,

the organisms do not live long in suspension and die off rapidly under the influence of light and dessication.

In sunlight or diffused daylight the bacteria in such powder die within an hour. The danger of infection from powdered sputum may, therefore, be avoided by ample illumination and ventilation of the sick room. All articles which may be contaminated and which cannot be cleaned by cloths dampened in a suitable disinfectant should be removed from the patient's vicinity.

Osteopathy is a specific cure for pneumonia, and when infants and children are intrusted to its care they are not left with serious after effects so often observed in general practice. The patient is never too young nor too weak to receive this treatment, intelligently given, and will always show gratitude for the relief, either by words or more restful sleep and easier respiration.

I hold it the moral duty of every well informed business man and clubwoman to help propagate the slogan, "Osteopathy for pneumonia." It is a specific with no limitations except the antagonism of prejudiced physicians and untutored laymen.

People's Life Ins. Bldg.

DIAGNOSIS BY X-RAY

Its Application to Oral Sepsis Often Reveals Unsuspected Causes of Systemic Conditions

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Los Angeles, Cal.

NOT so long ago the matter of having an X-Ray made of a tooth, except in isolated cases was generally considered a fad and a luxury to be enjoyed only by the well-to-do. With the increase of knowledge along all lines of diagnosis, however, and with a greatly improved technique, along with better and more powerful apparatus, the work of the dentist has gained recognition as of great importance in the conservation of health. The importance of correct diagnosis, with a consequent better chance of a cure, demands an ever increasing co-operation between the physician, the dentist and the radiographer.

In our search as physicians to find the origin of many of the ailments which present themselves for cure we are discovering an ever increasing number of troubles which have had their origin from some hidden focal infection of the teeth or tonsils. How closely these two anatomical bodies are related, and which is the primary cause when both are effected, is hard to say. But, from the number of cases where both are diseased, we can be sure that one infection has led to the other, and consequently both tonsils and teeth should be inspected in every physical examination.

Fig. 1

We are constantly meeting with patients who have run the gauntlet of treatments. They have suffered with many and varied physical maladies and have been benefited but little, if at all. They often present symptoms of digestive disturbances, heart troubles, toxic absorption, nervous and mental disorders, rheumatic diatheses and even skin lesions.

As physicians we have treated these patients over various periods of time. Some continue until they are dismissed without any apparent cure. Probably most of them leave us some day and we wonder why. We tried our best to help them, and indeed, they were helped or they would not have stood up as well as they did. At the same time we have been laboring to build them up, some hidden focus of infection—in some cases a veritable cesspool, has been discharging into their systems its poisonous contents, and thus our results have been neutralized. At last all we have left is our case record and the patient's memory. These were failures and we are persuaded that if we had taken proper notice of the teeth and tonsils many of them would have been recorded as successes.

Rheumatism and neuritic conditions are among the most common complaints we face, and they are often the most obstinate. Some of these cases are those which became discouraged with our results and left

for others to try to give them relief. Some of the most stubborn of these cases will clear up immediately after some apical infection has been cleaned out. In fact, the quickness of response which some of these cases show is no less than marvelous.

Fig. 2

The illustration shown in Fig. 1 will serve as an example of this nature. This patient consulted a physician for a very severe neuralgia of the neck and right scapular region. This patient also had a marked eczematous area on the back of one hand. Examination of the accompanying print shows both the right and left lateral and one central incisor to have a decided infection of their apices. Other teeth of this same case were bad, but the two shown in Fig. 1 were plainest to make a print from. This patient went to the dentist with the extreme decision that every tooth was to be taken out. However, the results were exceedingly good and the patient felt repaid for his extreme decision.

Pyorrhea is a very prevalent disease, and one that a great many pay no attention to, because they do not realize the grave consequences which their system must suffer. Unless they have pain a great many people think that everything is all right. Probably the majority of laymen when told that they may have an abscess at the root of some tooth and at the same time have no pain will look at you with a very dubious air.

Fig. 3

An illustration from case No. 702 Th. (Fig. 2) shows two very bad lower central incisors of a case of pyorrhea. This patient was a woman of 63 years. She gave a history of a small hemorrhage in the brain some two years ago, the left side becoming paralyzed. As time went on, she made a partial recovery. The physician who sent her for X-Ray examination was called to see her six months ago. He found a very high tension, over 300 mm. of mercury, also there was some numbness of the left side. Examination revealed nothing abnormal except that she had pyorrhea. After X-Ray films were taken (Fig. 2 showing one of them), she was sent to a dentist, who extracted four or five teeth. The last report we had from the physician in regard to this case was that all numbness was gone, the blood pressure was about 180, and the patient says she feels better than she has for four years.

There are many people who know they have pyorrhea, yet because their teeth do not actually fall out, or torture them with pain, they pay no attention to them. They do not realize that pus which is flowing from their teeth as water from an artesian well, is constantly being mixed with their saliva and swallowed, thus becoming literally an internal poison. They do not know that there is a continuous absorption from the pyogenic membrane or the lining of the abscess cavity.

Fig. 4

Then there is the general "run down condition," the cause of which is so often very obscure. These patients generally complain of being bad sleepers, their digestion is poor, they are nervous and irritable, and they complain of various other symptoms. After their history is taken and examination made the blame is often laid on a poor working liver, or perhaps to some previous acute disorder of the stomach, which consequently is not acting properly.

The illustration shown in Fig. 3, from case No. 545 Th., was taken from the mouth of one who complained of the symptoms just mentioned. Examination of this print shows a large distinct abscess about the root of the lower central incisor. There was a well marked fistulous opening on the gum by which this abscess was drained into the mouth. As long as there was no pain the patient, a woman, did not pay much attention to it. She knew that the tooth was bad, but was ignorant of its influence on her health. There is no one who would not shake with horror at the thought of taking the contents of a boil and swallowing it, yet

many are doing this very thing continuously by not having their teeth taken care of. The dentist extracted this tooth and is taking care of the neighboring teeth, which show the influence of this primary infection by the presence of other foci. The patient in question has made great physical improvement already, and we believe when the entire mouth is cleaned that she will be a well woman again.

Fig. 5

The various cases of dyspepsia, which from a symptomatic viewpoint might indicate gastric ulcers, neuroses, etc., have frequently been known to disperse and leave one with a good digestive apparatus after some hidden focus of mouth infection was discovered and properly dealt with. Barclay reports cases of spasm of the pylorus, found by X-Ray examination, which were absent in later examinations after some tooth infection had been removed.

The illustration shown in Fig. 4 was made from a man 44 years of age. He had been in a general "run down condition" for about five years. During most of the time he knew he needed to have some general work done upon his teeth, but as there had been no pain they were neglected. Beginning with November, 1915, he complained of rheumatism in both legs. By the middle of December of that year he was unable to walk more than a block at a time, and that very slowly, as the pain in his feet became so severe. From December to May of this year he was confined to the house most of the time and compelled to give up his business.

He had tried several physicians without success. At the recommendation of one he tried some hot springs and mud baths, still no results. Finally one physician inspected his teeth and recommended an X-Ray examination. During the latter part of May X-Ray films were made of his mouth showing seven badly abscessed teeth. Fig. 4 illustrates what was found.

Fig. 6

The dentist to whom this gentleman was sent recommended to take all but four of them out and make plates. This was done, and to-day the patient is back in active business, has no pain, has gained twelve pounds, and feels better than he has for eight or ten years.

Fig. 7

The next case is one of our physicians who had not been able to practice for several months. He was trying to regain his health, but was making no headway. As he complained of gastro-intestinal trouble, we made, at his request, a bismuth meal examination. We found the transverse colon so low that it followed the brim of the pelvis. The hepatic flexure was an inch below the level of the iliac crest and the first part of the transverse colon was held back against the ascending colon by adhesions. With these findings the physician went to work to see if he could not, by mechanical means, correct some of these faults. For a while success seemed probable, but after some time he came back with a large boil over the temple region. He said then that he had a little trouble with his teeth. We persuaded him to have X-Rays made to see the exact conditions. When we examined the films we wondered how a man could be well and have such mouth conditions. The next two illustrations, Figs. 5 and 6, are from this case.

Note in both prints the bad abscesses (A) at the roots of the teeth. Also, note how many of the root canals were not filled to the apex of the root. In Fig. 5 a peg is seen almost puncturing the side of the tooth. In Fig. 6 considerable necrosis had occurred, leaving a large mass in the center completely surrounded by the abscess. At (B) is shown where the root canal filling had penetrated the side of the tooth into an abscessed place.

With such wells of pus as this it is no

wonder a person could not become well. He was advised to see a competent dentist and have something done. As we have lost sight of him lately we are unable to speak of results.

Fig. 8

Nervous symptoms are frequently found to be accompanied with pus absorption from the mouth. Another case of a woman presented symptoms of dizziness. She was pessimistic, and as she was quite sallow her liver had been blamed for her condition. The abscessed tooth shown in Fig. 7 was extracted, and within two weeks the dizzy spells had disappeared. After one month had passed all her other symptoms had also disappeared and she said she was in good health. One very noticeable change was, in that her mental attitude was entirely changed, and she became very optimistic.

The next two illustration were taken from the same trouble. This patient, a woman, presented symptoms of poor digestion, and was very nervous. In fact, she had been passed off by several who told her she was simply nervous and needed to rest and build herself up. She was told to take life easy. Finally one physician inspected her mouth, and the pictures shown in Figs. 8 and 9 tell what was found. On both sides were two large abscesses. These teeth were extracted by an extracting specialist, and two weeks later she was feeling better and decidedly on the road to recovery.

Fig. 9

Many other cases could be shown, but as our space is necessarily limited, we have simply aimed to give an idea of the varied possibilities in this field of investigation. We have not dealt with fractured teeth, foreign bodies as broken needles and the like as X-Ray of these cases are now well recognized.

From the cases cited above it should not be inferred that the X-Ray is the last and final proof. The teeth should not be sacrificed from the X-Ray examination alone. Due consideration should be given the clinical history and the dental findings, and a decision made only by checking the one with the other. We do, however, want to impress upon all that the mouth needs attention in every case, especially chronic cases, unless the diagnosis is evidently very clear and open. There is no telling what the future is going to reveal in the way of the causes of disease. The past few years have linked many cases definitely with the mouth, and we as physicians must be on the alert that such cases do not miss our attention.

FERGUSON BLDG.

THE COLUMBUS CONVENTION

While the date of the Columbus Convention has not been definitely fixed (though sentiment seems largely to favor the usual convention date of the first week of August), Dr. Frank C. Farmer, of the program committee, has been working in dead earnest for several months, and soon the outline of the program can be announced.

The local committees have been appointed and are announced herewith: General Convention Chairman, M. F. Hulett, Columbus; Press, E. H. Bean, Columbus; Exhibits, E. H. Calvert, Columbus; Registration, P. S. Nichols, Delaware; Information, L. H. McCartney, Columbus; Entertainment, Mary M. Dyer, Columbus; Halls, S. A. Hall, Columbus; Reception, E. C. Waters, Chillicothe; Reunions, Katherine Scott, Columbus; Membership, J. M. Hiss, Columbus; Banquet, L. A. Bumstead, Delaware; Health Sunday, J. H. B. Scott, Columbus; Secretary-treasurer, J. B. LaRue, Lancaster.

Columbus is well in the centre of the osteopathic population, and a record attendance may be expected at the meeting next summer.

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EDITORIAL

GREETINGS

The officers and trustees of the A. O. A. wish to extend their greetings to the profession as we enter a new year. Your officers plead for a united profession and more, an earnest, serious minded profession.

The concerns of osteopathy are greater as each year goes by and its relations with the State and with other systems are more serious. These will not settle and adjust themselves. They require the earnest attention of the best brains in the profession. The officers and trustees invite the closest co-operation of every member. While they are doing and will do their utmost in behalf of the membership they need expressions and manifestations of interest from all.

The advancing and establishing of osteopathy is not the duty of the officers and trustees, it is the duty of every osteopathic physician. Because we have organized effort to secure unity, because we select a few men and women each year to represent us is no reason we should lose interest in our profession's affairs for the year. It is not fair to those whom we select to thus neglect them nor is it fair to ourselves to manifest so little interest in our most important business concern.

Osteopathy embodies so much of truth, it has met with such remarkable success and the future has so much in store for it that it deserves all possible consideration from its friends. Hence your officers in extending New Year's Greetings, in congratulating you on the work osteopathy is doing for sick people, bespeaks your more serious interest in the profession's welfare and advancement. The officers and trustees want to know your views, they want to represent you, and all working together and to one purpose let it be our resolve to spread the knowledge of osteopathy and its message to those who need it away farther this year than ever before.

WHY MANY CURES.

Many facts regarding disease causation can now be made plain to the layman of average intelligence. And since within the next few months the legislatures of most of our States will be in session and will be called upon to consider health legislation, it is very desirable that these facts fundamental to disease and cure be clearly in the minds of the profession in order that they may be so presented at the proper time to these legislative bodies.

In regulating health matters we believe the men (and women, we must say now) in our legislatures intend to be fair and act according to their information. That they place power of which the Czar might be proud in the hands of certain health officials is because no other adequate means seems to be in sight. A marked difference exists, however, between the power vested in

the health officer in the handling of epidemics and in the rigidity with which the medical practice act, as it concerns general practice, is enforced.

There are several reasons for the non-enforcement of medical practice acts, and these might with profit be considered in this connection. First and fundamentally, we believe, is the fact that people generally have come to look upon the average doctor as incompetent in handling many conditions. They look upon his opposition to other systems as pure selfishness and his ignorance of them as due to sheer prejudice. Our civic structure has developed around one school of medicine which is intrenched at every point. The minor schools have had practically no opportunity to show what they do in the handling of epidemics, because as soon as a disease suggests the epidemic stage in a community the health officers take charge and wherever possible forbid the handling of these cases except through their officialdom,

At least, the strength of the health department of the State is directed so as to make it very unpopular and uncomfortable for a family under such conditions to have any but the orthodox (and self-established) form of treatment. So much for the prestige of the dominant school in the handling of epidemics and in the field of control of disease.

On the other hand, most medical practice acts are so loosely administered that an unlicensed person may practice almost anywhere he chooses. This is manifestly not right. It is neither fair to the public, which has a right to expect training and skill from those whom the State permits to practice, nor is it fair to qualified physicians of all schools who have made long preparation, which the State does not respect, and in fact practically vitiates the license it gives when it allows others the privilege to practice without license. There are two or three basic reasons for this state of affairs.

First, as mentioned above, the general public does not any longer respect the ability of the average medical man to handle many of the common, ordinary ills of life. Second, there is the injustice of it, since no difference is made in the educational requirements of those who are permitted to use surgery and administer dangerous poisons and for those who use no such deadly methods; and there are those who use no material methods, but treat through psychic means or invoke Divine assistance, and they must all submit to the same examination, because the State recognizes only one school, or they are outlaws, and get the advertising benefit of appearing so much in demand as to justify them in defying State laws. And the legislature should not overlook the fact that this is an advertising asset. Now it is hard to convince the public that this one standard is unjust, and so long as the great part of the public seems disinclined to employ that class of doctors who rely upon deadly drugs and surgery, and so long as the laws are so constituted that healers must submit to the requirements which are right and proper for those using drugs and surgery, or defy the laws, present laws are difficult of enforcement.

A third difficulty arises because practically all of the States make it the duty of the *profession* to prefer charges and to undertake the conviction of violators of the act under which they are practicing. This is manifestly wrong. While each school of practice should have the right, and it should be its duty, to identify imitators and incompetents under its own system, at the same time it is not its duty to *enforce* the act, and it places the practicians or profession in a bad light when it must go into the courts and assume the role of prosecutor. The medical practice act is as much the law of the land as any other upon the statute books, and it should be enforced in the same way. It is the public that is offended against.

But the legislatures will be slow to make this the duty of the regular prosecuting officers, and the prosecuting officers will be disinclined to press the charge until

there is a change in public sentiment, and precedent to that change in public sentiment a condition of justice must be brought about for all who would treat the sick. And the basis of this idea of justice is to require educational qualifications and experience in preparation based on the rights and privileges to be granted in practice. That has been suggested by the osteopathic school of practice several times, and we trust that in those legislatures which will consider these questions the coming winter some real educative work will be done by the profession in the meanwhile. This suggestion was made by Dr. Draper, the late Commissioner of Education in New York State. While he did not elaborate a plan, his keen insight into medical practice conditions moved him to recommend to the New York Board of Regents that a different course of preparation and a different examination as a condition of license to practice be required of those who depend upon radically different measures to treat human sickness. The plan the JOURNAL has proposed with the approval of our legislative committee is this: First, an education board should have primary jurisdiction over all classes which minister to the sick—all branches of the healing art, including surgery and perhaps dentistry. There should be organized a board or committee for each of these groups, one for those who use drugs internally in the treatment of the body; one for those who use manipulative procedure; one for those who qualify as operative surgeons, and one for dentists. We know of no other means which might be used as curative.

Under power from the legislature the education board with each profession or group should work out the field of practice, and the preliminary education as well as the technical training to be required of that particular group should depend upon the means to be used in treatment. Every license would then be a limited license, everyone being permitted to use any means as first aid or emergency measures, but allowed to hold himself out and practice only what he has prepared himself to practice and for which he is licensed. Wherever there is the opportunity to make broad revision of medical practice acts we urge consideration of this form. The A. O. A. has a pamphlet bearing on this phase of legislative justice which may be had by anyone interested.

Naturally comes up the question, why these many cures? Why so many different forms or systems of treatment with which the State must deal? In part it is due to natural cupidity, the satisfaction many seem to find in getting more than they give value for; likewise, the gullibility of the general public, when it comes to health, contributes largely. Conditions have not changed materially in the several thousand years since the fact was recorded, "All that a man hath will he give for his life." And yet back of all this there is reason for attacking disease along different lines. Disease may be attacked with apparent success from different angles because of different conditions contribute to the cause of most cases of disease. Let us see if we cannot get a practical lesson from considering some conditions precedent to the sick person calling or calling upon the doctor.

First, a person does not usually seek a physician until his condition has made an impression upon his mental state, until he realizes that something is going wrong with him. This fact, of course, at the outset suggests the value of the mental side of therapeutics, and the fact that the sufferer, realizing something is wrong, comes to the physician and places himself in his hands, makes him a good subject for this phase of treatment. Hence all forms of treatment properly have, whether so intended or not, a mental or suggestive element.

Most chronic and acute diseases, including infections, have several contributory causes. A physical basis due to structure having been robbed of its perfectness of adjustment we usually find as one of these causes. By reason of this perversion re-

serve force has been diminished and function becomes more easily disturbed. Among contributing causes come exposure, overwork, mental anxiety, over-eating, faulty posture, under-exercise and the sufferer seeks the doctor. He goes, we will say, to a mental healer of some sort who convinces the sufferer that his viewpoint and mental attitude have been wrong; that he has not been able to call to his aid his own latent forces and with a knowledge of how to do this, health will be restored. Or some divine healer of whatever name undertakes to place the sufferer in more direct communication with the forces from the Infinite upon which the man or woman is to draw freely. Convinced of this he soon is able to shoulder the burden which formerly seemed too heavy and to carry it with comparative comfort, at least for a while, and so long as he does, and can maintain that attitude, he is "well."

The patient goes to another sort of doctor, who after thorough examination and careful inquiry decides that overwork has been the cause. He prescribes an ocean voyage, a summer in the mountains, resigning from business, absence from home cares. Under this wise, though maybe superficial treatment, body reserve forces are restored to the point where symptoms are overcome and health, at least for the time, appears restored, because functioning has returned to the point where its failure is no longer recognized.

Let us not forget that in all of us there are elements of friction and discord which the organism takes care of without bringing them to the plane of consciousness. This accounts for the fact that no apparent harm comes from vicious habits and errors of personal hygiene; also for no appreciable effects for a time at least from osteopathic lesions. But in time, depending upon vitality and co-ordination, the reserve force which maintains equilibrium and harmony is exhausted and we become conscious, not of one but of several disorders. This emphasizes the necessity, not only of correcting physical defects, but also faults of habit and hygiene, particularly diet and exercise, to that which is proved to be normal to the average. If there is a normal heart beat and normal amount of urine secreted, there is also a normal regimen of exercise and dietary. Perfect structural adjustment permits the organism to care for these violations without producing symptoms, though all the time calling on the reserve supply. Osteopathic lesions prevent these reactions, prevent organ or function coming to aid of other organ or function, hence the range of adaptability of the organism is lost, and until this is removed treatment is difficult and results doubtful. On the other hand, if errors of diet, hygiene or habits are the main lesions, remove them even if the body could be stimulated to overcome them for a time because they are using up reserve force and causing many unnecessary reactions.

Maybe the doctor finds that the patient has not eaten judiciously and has not exercised sufficiently. The fluids of the body are changed chemically. The doctor orders chemicals to neutralize the condition and in time the symptoms complained of disappear. In nervous disorders he gives something to modify or suppress the symptoms to the point where we are not conscious of them, in the hope in the meanwhile that nature will have restored harmony, which, in fortunate cases, she does.

All of this treatment has done well so far as the measures have gone; it has met one feature of the ailment, it has corrected one of the contributory causes, or in the latter cases has suppressed symptoms. With one cause of disturbance removed perhaps the others do not produce symptoms up to the place of consciousness. The other causes are all operating as before, and in the nature of things will result in a relapse, and yet the doctor gets credit, because "he cured me."

These hypothetical patients might have consulted an osteopathic physician, and with the exception of the drugs which, if anything, are symptomatic treatment, they

might have had done for them just what the specialists did. Besides, the osteopath should have done for them that which will add one hundred per cent. to the effectiveness of any treatment—freed up structure so that normal responses and reactions might occur. When physiology is understood and research is done from the standpoint of science rather than from that of affecting body reactions by drugs, the value of this phase of treatment (both curative and prophylactic) will be appreciated. The trouble is, we do not yet half appreciate it ourselves and hence have not been the ardent missionaries we should have been.

Yet the principle is so simple. How can abnormal structure be expected to function normally (either in resisting or overcoming sickness)? One trouble is that too many do not accept *as a working basis* the fact that all reactions and efforts of the organism are toward maintaining and restoring the normal and that these disturbances of structure in addition to causing abnormal reactions, prevent to a greater or less degree the efforts of the organism to normalize its functions. Teach this in our colleges to the point of conviction and we shall not need to worry about the efficiency or permanency of osteopathic practice.

We know that fundamental to all functioning is structure. We know much of the reactions of the body which the patient becomes conscious of and calls his "symptoms" or his "ills." We know that these reactions are an evidence of the effort of the body to adjust itself to the chemical changes taking place in its fluids and tissues as well as to adaptation to the changes taking place around it, no less than to adjust its own physical maladjustments. Now what is the logical treatment?

If we are thinkers along Nature's lines we know the treatment when we know the primary and contributory causes of the ailment or illness. In most, if not in all cases, structural conditions enter into it as either primary or secondary consideration. What is to be done? Of course, the correction, as far as possible, of structural changes. Yet the symptom complained of in many cases of ill health is not the direct result of the structural defect that causes the symptoms. That is, the sick person may not feel the direct and primary effect of the osteopathic lesion. The structural defect has dissipated reserve force and caused discord in body functions, and this condition has brought errors in habits or hygiene up to the plane of consciousness and it has become the chief symptom in his illness.

Because the person is conscious of his discomfort he needs a painstaking, impressive examination. His condition means more to him than our interest in what he tells us indicates it is to us, and a definite assurance of what he may expect should be given; provided, of course, the prognosis is favorable. His personal habits, hygiene and environment need to be inquired into. Because his structure may be put in adjustment is no reason that he should be allowed to eat otherwise than meets the needs of his body economy, nor is it a reason that he should work more than a person of his physique can stand. If overwork or unwholesome psychic or physical conditions are responsible then see that these are removed. By all means the structure should be set in order just as carefully as if it were the sole means of effecting recovery. Not only will the recovery be made speedy but likewise more permanent if all contributory causes of the disability are removed.

There is no reason why the osteopathic physician should not be as quick as any other to recognize every contributory cause of illness. Because he adjusts the structure of the body for a long and efficient run through life is no reason that he should not insist that its economy be unencumbered with any physical, chemical or mental incongruity. When a sick person, or one whose efficiency is below par, visits an osteopathic physician the most thorough examination that person has ever

had should be given him. His symptoms and case history should be carefully taken. The physical examination, if properly done, can be made most impressive and convincing to the patient, because it is more exhaustive than the patient has ever had before, and its interpretation is different.

The first consideration, we should say, in treatment is detection and interpretation and a skilled effort to adjust the osteopathic lesion. And that should stand out in the estimation of the osteopath and should be impressed on the patient as the main reliance for permanent restoration of health. But if results are to be speedy and if cure is to be permanent a common sense insight into the patient's life must be had and inharmonious conditions be removed. The average case can receive all the mental and psychic treatment required from the well trained osteopath. The osteopathic physician should know more about diet than any drug doctor and he should be able by properly eliminating foods and combining them to accomplish more for digestion, assimilation and elimination and the change of chemistry of body fluids than the drug man can accomplish without the skill in diet adjustment. From his more thorough physical examination the osteopath should know the limits of vitality, hence should be more capable than any other to determine if change of occupation, shorter hours, lighter work or vacation is necessary, consequently the trained osteopath should make the best possible examininers for life insurance. If the osteopath loses none of his skill for detecting and correcting the osteopathic lesion and none of his enthusiasm for this, the main feature of the treatment, because he considers every contributory cause in the case, he will set the pace even more than he has yet done for physicians of all schools to follow.

This, we believe, is osteopathic therapeutics. We have the structure as the basis and machinery of all functioning. We can do what no other system can do —adjust that machinery to bear its burdens and perform its duty. We can do what any and all other systems can do in adjusting and regulating external burdens and duties to the capacity of the organisms. Our first duty is to our students, to equip them for this work. It is no small task. It is a field practically co-extensive with all that is known and proved of value in the healing art. And then our duty is with the graduate body, to increase our efficiency by reading and graduate work until we are qualified along these several lines, then our place in the sun is assured.

TWO PROGRAMS.

We now have our choice between two programs.

First—To keep our profession as thoroughly osteopathic as possible. To work to the utmost to have our schools teach osteopathy and to produce osteopathic osteopaths, and we help them through sending them students to produce as many such as possible; to pursue this course until we gain numbers and strength. Meanwhile standing if necessary for some unjust limitations that we may keep the control of our own profession through all possible independence in regulation until we get sufficiently strong, have sufficient popular acceptation, have the numbers and influence to get all just privileges under such forms of regulation as are dominated or at least strongly influenced, in a practical way by our own people.

Second—To ram ahead with an immediate campaign for unlimited privileges, getting it by the only way that it can be had at present; that is, by accepting regulation that calls for or is dominated by medical men who will have the power and will put up student-cutting standards and virtually place our schools under medical domination by the character of the tests demanded.

The first offers fighting possibilities and the chance to maintain professional integ-

rity; to have the osteopathic profession stand as a distinct leader in the therapeutic world.

The second, as to offering this possibility, is hopeless, for under the medically dominated, student-cutting standards it means the decline of our colleges to mere advertising mediums for a few local D. O's. who drop in from their private practice a few hours a week and give lectures; it means the era of the osteopathic chair in the medical college; it means the present condition of homeopathy; it means that the imitation and kindred short term osteopaths will fill the public's demand for non-drug practice.

Under the first you and I, reader, will live to see the osteopathic profession standing out independently as a distinct professional leader in the therapeutic world. It means that humanity as a whole will within the next few decades receive osteopathy in its purity and utmost effectiveness.

Under the second the osteopathic principle will work its way out through the multitudinous hodge-podge of therapeutic fallacies, slowly and tediously, just because it is truth. It will work through in spite of all prejudice and with the scattered help it gets because of its very truthfullness, and carried by the weight of its own truthfulness. Here and there a man will be credited with having discovered certain things that will be discoveries along osteopathic lines. Dr. Still will not be recognized and given credit as the discoverer of a therapeutic philosophy. There will be no distinct osteopathic profession. You and I will never live to see the osteopathic idea receive the universal recognition under this plan that it will under the first, for by this program its beneficent administrations will be held back from humanity for long, long decades.

ASA WILLARD, D. O.

Missoula, Mont.

ROCKEFELLER AND MEDICINE

It is said that the fortune of Mr. John D. Rockefeller, already supposed to be much greater than that of any man in the world, has more than doubled the past year. He is seeking means of making that money useful—no question about that—but from our standpoint he has fallen in with bad advisors when he puts himself in the hands of Mr. Abram Flexner. The announcement is made that Mr. Rockefeller gave $2,000,000 in one lump to add to a $9,000,000 fund already provided to endow the medical school of the University of Chicago. The plan is to take over the Rush Medical College, and make this a school for specialists. The objective is that this one institution supply what so many American physicians ostensibly go to Vienna, Paris and London to receive. True, an institution may be set up in Chicago where a physician can get more than most of them get on those junkets abroad, but the question is, will they get as much advertising in their communities out of going to this new medical college in Chicago as they would in a few weeks spent in Vienna? And consequently, will so many of them go?

Rush Medical, which is to live only as a memory (and perhaps no longer than Mr. Flexner can eradicate it) was named for the Revolutionary patriot-physician, Benjamin Rush, who is credited with some very wholesome thoughts as to what constitutes medical practice, which are not in line with Flexner's ideals. Let us ask and answer, if we can, a few questions along this line.

Is this institution, dedicated to specializing, the greatest need of American medicine at the present time? Is it in line with the American public's need of medical practice? Is education the greatest need of medical practice from the sick person's standpoint at the present time? Are not *real* men and women in medicine men and women with hearts and souls—not heads only—more needed? Is not there a greater need of teaching, which does not appeal to Mr. Abram Flexner, to impress upon men and women entering the practice of medi-

cine the high calling to which they are responding? Their duty is to humanity first, to science and their own reputations incidentally and later. Is not the raising of preliminary standards, the lengthening and added expense of the college course, the halo that is being thrown around higher educational standards as a condition to the practice of medicine, making it possible for only the sons and daughters of the rich—and in many instances, new rich, where the family wants this honor—to take up the study and practice of medicine? And have these young men and women as a rule the qualities of heart and character which make them the most useful for the sick? These are facts, are they not, that the poor in this country far outnumber the well-to-do, and that sickness among the poor and the need of the doctor among the poor are far greater than among the well-to-do? And is it not equally true that it is the *average* ills, the common, everyday sort, that most need care? And more than that, *teaching* rather than *drugging* is the desideratum from the doctor of to-day, and this will be more and more true as our population congests in the great cities.

How much university education and how long must one spend in the new $15,000,000 institution to become most useful for this great high calling? And is it not probable that the longer the man or woman spends in university life and the greater time he puts in on animal and *human* experimentation in hospitals and clinics of the great college in becoming a renowned specialist, the less useful he will become and the less he will bear as his share of this great burden which the physician class must shoulder if it does its duty in helping the average citizen adjust himself to his environment and thereby secure help and happiness for himself and the many usually dependent upon him? If the rich and the scientists are not to raise large families themselves the least they should do is to make conditions tolerable for those who do their duty in this regard.

We do not in any sense depreciate the value and advantages of education, general or technical. But we do depreciate the tendency to make the means necessary to secure this training the deciding factor as to whether a man or woman can become a physician. If some of this recently piled up wealth were available to enable less fortunate, financially, men and women who have a consuming zeal to become physicians, and if applicants for matriculation could be kept at the college for the summer previous to matriculating and studied by the dean to ascertain their fitness for the practice of medicine and give them the opportunity to study the physician's work in the hospital before beginning the study, or if the first term were made strictly a probationary period, we should see the *tone* of the medical profession rise by leaps and bounds, and in a few years it would be respected as of yore.

In this connection we recommend to every reader the little book on the "Principles of Diagnosis and Treatment in Heart Affections," by Sir James McKenzie, sold in this country by the Oxford University Press of New York. A physician will have a sound conception of his duties and obligations if he reads this book, and it will not lead him into the belief that his highest usefulness can be attained only by being a super-specialist.

We are fully aware that our opinion is not going to change the plans in building this mammoth medical institution, nor influence its attendance, nor even Mr. Flexner's ideals of education, but we do hope that this line of thought will not escape our own osteopathic colleges and at least will be carefully considered by all osteopathic physicians. After all, there is no sublimer word in our language than "duty," duty to one's self and duty to the larger number of one's fellows. Let us strive this good year to develop our system and each to develop himself to meet this ideal.

Dr. McCONNELL'S DISCUSSIONS

SIGNIFICANCE OF PRINCIPLES.

A student of osteopathy is always much interested in technique manipulation owing to its direct bearing upon his future life work. But too often he is prone to neglect two far more important things than technique formulae; namely, *principles* of diagnosis and of technique. Mere memorizing of technique formulae is not studying technique any more than memorizing the various steps of a urinanalysis test will educate one in the principles of this important field of diagnosis. It is almost trite to say that a mastery of the principles is the only road to a thorough understanding of the subject, then memorizing of a formula becomes unnecessary.

If one understands the structure and function of a joint, its planes and angles and their uses with a definite survey of its underlying dynamics, which includes an appreciation of the biologic relationship of the joint to the rest of the body, and a working knowledge of mechanical principles, the first step in practical osteopathy is attained. This should be accompanied by tactual sense-development so that the many possible abnormal tissue variations may be detected. Then the mere manipulative indications will solve themselves. There will be neither confusion of mind due to half digested borrowed thoughts nor manipulative bungling resulting from an attempt at imitation. Each instance will stand out clear-cut, distinctly individual—a truly creative work.

To a similar degree will the teacher in technique be a success when he instructs his students in the underlying principles, knowing full well that the mere movements themselves are only a means to an end, depending upon individual conditions and requirements, as the instructor in any other subject will be a success when he never loses sight of the fundamentals of his topic and their relationship to the broad field of hygiene.

But after all, the inculcating of the principle is only a means to an end. It bears a relationship to a definite concept or viewpoint of the healing art, similar to a technique that exemplifies an ultimate source. Technique proceeds from a source or principle, and fortunate is the student who early in his training is enabled to grasp this basic point. Then it will be almost certain that the inner meaning or essence of fundamental osteopathy will become a conscious fact of his life work.

Through the law of adjustment, especially after a little actual practice, he will begin to realize the therapeutic significance of the healing properties of nature as well as the true meaning of all bodily forces. These forces and properties are the embodiment, the organizer, of a complete vital organism that is able, through unerring physical and chemical laws, to not only build a structure but also repair the same.

To attain to this confidence in nature is the first desideratum. This contains the spirit of the osteopathic struggle. One can not borrow this idea and expect to be a success. It must become a living reality, a conviction, an integral part of one. I am not implying that clinical osteopathy is a religion or a portion of pantheistic thought, but I do unqualifiedly state that unless one is imbued with its scientific viewpoint, and, moreover, is not able to actually sense the living anatomical through the tactual appreciation he is far from being an osteopath. This demands hard work, a daily struggle for many months, to thoroughly educate the tactual sense, This is the only road to practical osteopathy. I have heard students say that finally the significance of osteopathy came to them like a flash, an inspiration, which is undoubtedly true, for inspiration demands concentrated effort and rigorous intellectual discipline. And we should never forget it is through the sheer efficiency of practice, getting results, that the public has constantly shown its trust in osteopathy.

Perhaps in no other scientific field than that of the healing art has empiricism so absolutely run riot. Only within compara-

tively recent years have definite methods of investigation and concerted action brought about a certain semblance of exact and comprehensive work both in the teaching and practice of medical subjects. Owing to the jumbled, chaotic and ofttimes irrelevant mass of "practical therapy" there arose in Dr. Still a determination to seek the fundamentals of the health state, and thus arrive at a truer understanding of the condition of ill health.

The osteopath has justification for the thought that osteopathy has to a definite extent been a leavening factor in helping to solve many of the problems. The efficiency of osteopathic procedure and its application to practically the entire therapeutic field, thus basically and comprehensively exemplifying distinctive principles, can not be construed in any other manner.

It is safe to say that osteopathy will remain intact, a separate, distinct and complete force in the world of the healing art, just so long as its professional "ideals persist and with the resulting consciousness of unity of purpose," based upon therapeutic efficiency. When solidarity and loyalty of our organization becomes negligible the end is in sight.

* * *

In my experience with osteopathy I have never been satisfied that the more recent methods of teaching are productive of better osteopathic results of impressing upon the student the very fundamentals of the work than that followed by Dr. Still. True it is, we know more of the logic and reason of osteopathy; we have broadened in the sense that other schools have broadened, through a more detailed knowledge of pathology and diagnosis and their application with a resultant of greater exactness and comprehensiveness (which by the way does not always mean a similar increase in therapeutic efficiency); and we are enforcing certain tried out pedagogical principles. But in all of this development has the osteopathic quality, or what Dr. Teall would term the core of primitive osteopathy, evoluted at an equal pace? This is not offered as an adverse criticism of the present teaching staffs, nor as casting reflection upon the character of the student bodies, for I believe there is a decided improvement in both. It is simply a question of productiveness.

I am inclined to think the point of criticism rests elsewhere; namely, in the method of teaching osteopathy. Still there are two very important factors that can not be overlooked: first, the wonderfully commanding personality of Dr. Still himself; and, second, the present urgency of getting a license to practice. But with all of this to the contrary notwithstanding, we are confronted with the true significance of osteopathy itself.

Just so long as our teaching methods are patterned after those of other schools, more or less based upon the same texts, with the result that osteopathy is relegated to one phase of therapeutics, we can not possibly come into our full stature.

In an early day osteopathy was taught from an entirely different standpoint; and let it be stated once for all that no one questions that there was, from the very nature of things, gross shortcomings in the curriculum. But the principle or method of teaching, I am convinced, was the correct one. The essential thing Dr. Still fought and bled for was the preventing of osteopathy becoming a "tail to the medical kite," for he hammered it into his students, in season and out, that osteopathy was not simply a therapeutic measure of a manipulative type, but first and foremost an etiological concept based upon the anatomical and physiological completeness of the body.

He had the right good sense of taking his students under his personal wing in the treating room after they had had a few weeks' instruction in anatomy and physiology. While they were still completing these basic studies, shortly to be followed by instruction in chemistry and pathology, he saw that tactual sense education,

which means so much in osteopathy, was properly carried out.

Academic instruction without the concomitant foundry and machine shop work will never make a practical engineer, any more than theoretical teaching of the biological sciences without actual laboratory work will turn out a research worker. The same holds true for our osteopathic practitioner. The practical part can not be successfully tacked on; it must become part of the weaving. Then the actual weaving in of the tactual and manual work means something far more in osteopathy than it does in the other illustrations I have used. It exemplifies and expresses a viewpoint, a conception and eventually a conviction, so different from the warp and woof of the other schools that anything that savors otherwise, as certain medical texts, simply delays, if not more or less forestalls, the obtaining of the very essence of osteopathy. (It can not be argued here that science like art is neutral, that it simply states facts and portrays conditions. This would be well enough if "medical science" was a science; but it is well known that the value of a medical fact entirely depends upon its interpretation.) Osteopathic practice is so intimately expressed through the tactual sense that to educate our practitioners in any other way is certain to fall short of the instructor's duty. I feel that this fact is so outstanding, in reality commanding, that a certain clinical or laboratory instruction should be begun early in the student's course and continued throughout.

By carrying out this method, any of the other studies are not to be neglected, but instead an added zest and interest and reason is given the student, which will carry a conviction, even an enthusiasm, through all the studies that bear upon etiology, pathology, diagnosis, prognosis and therapy that can not be obtained in any other way. Then there is an osteopathic feature that is frequently overlooked: the commonly accepted natural history of a disease from the medical viewpoint is often changed or shortened by osteopathic measures.

It means that his anatomy, physiology and pathology from the very first day are living facts, and not as it so often seems to be, mere lumber. It puts osteopathic life into his entire curriculum, a definite object that he can always see before him from start to finish, and turns out something like a finished osteopathic product. His slangy "manips" will not be an afterthought, though an important one, and not relegated to routinism or imitation, but instead he will appreciate that structural findings and their indicated mechanical and physiological principles rest absolutely upon the individual case, and are really of commanding importance. Thus his work will become inspiring, for then he will recognize the meaning of creative endeavor. He will interpret osteopathically, whether it refers to the case before him or to the printed page. If osteopathy is inclusive of anything, it encompasses the entire gamut.

* * *

It was my intention to jot down some of the salient features of Dr. Billings' little book of a hundred and fifty pages on "Focal Infections." But the entire work is so full of meat that I would earnestly suggest that every practitioner read it. It actually crystallizes the present day teaching and practice of this important field of etiology and therapy; and it is not saying too much that unless one has thoroughly kept abreast of current medical literature and also applied these principles to his every day practice he is behind the times. It is simply part and parcel of fundamental osteopathic and surgical teaching. Billings is unquestionably a leader in this work, having done notable work in both practice and research.

Two or three broad features are most noticeable: the extensive field in both acute and chronic diseases wherein focal infections may be important causative factors; the necessity of building up all of the

body's natural defenses through rest, nourishment, environment, air, sunshine and general hygiene, not alone removal of the septic foci; the frank statement that serum and vaccine therapies, as at present practiced, are far from satisfactory.

Two or three statements will give the gist of the latter point. Billings believes that "the prophylactic and therapeutic use of antitoxic sera in diphtheria and tetanus is established upon a scientific basis." But he says, "The use of specific antisera in the treatment of diseases caused by endoxtic bateria has been far from successful." There are several reasons for failure, among them the "existence of variant strains of bacteria which may not be differentiated morphologically. Moreover, there may be a marked difference in the various strains in pathogenicity and virulence and in the tissue reactions of the infected individual. Each strain may arouse specific effects and the result thereof will be influenced only by the therapeutic serum obtained from an animal immunized with a like strain." Thus it is seen how complicated and confounding or even insolvable from the serum standpoint many problems are apt to be.

From the osteopathic standpoint the solution is certainly, or at least very often, more consonant with nature's efforts adjusting the structural lesions, removing the focus surgically if necessary and practical, paying attention to every factor of hygiene, and through stimulatory treatment arousing the natural defenses of the body. Such a treatment is both logical and scientific. Here is both an interesting and practical field for our research workers. Results could be nothing short of illuminating. Clinical material is abundant. Our practitioners are constanly getting brilliant results, perhaps not so often as they should if they were more conversant with details of diagnosis and technique, but just how? Certainly osteopathic measures do not raise such problems as anaphylactic shock and other objectionable effects.

Relative to the use of vaccine therapy Billings thinks that vaccine protects against variola, and that protection may be had for a variable time duration in typhoid and paratyphoid fever by inoculation with living or dead typhoid bacteria and paratyphoid bacilli, but these methods of *prophylaxis* have a very limited application in practice. But in the present use of *therapeutic* vaccines the basic scientific principles are less stable. I will refer the reader to the book for a discussion of the many unknown factors.

In autogenous vaccination, to estimate the results, he concludes that the opsonic index is unreliable. He says:

> In place thereof we managed some patients with and some without vaccination, but all of them upon the same hygienic treatment. The final result was quite satisfactory without as with vaccine, in patients suffering with chronic arthritis and acute rheumatism. Patients suffering with chronic streptococcus viridans endocarditis were not benefited by autogenous vaccines. Indeed, I believe some of them were made distinctly worse when moderately large doses of vaccines were used. * * * Therapeutic vaccination has progressed in this country into an irrational fad which is intensified and made degrading to the medical profession and harmful to the patients by commercial greed.
>
> We are forgetful of the principles of medical practice of our fathers. They recognized the influence of old age, exposure to extreme cold, poverty and poor nutrition, physical and mental exhaustion, faulty personal hygiene and other debility-producing factors in the causation and also in the prolongation of infectious and other diseases. They also recognized the necessity of the removal as far as possible of all these contributory etiologic factors in the management of the patient. The modern vaccinationist pins his faith on the advertised specific virtues of stock vaccines, which he may employ in polyvalent form to insure a sure-shot effect. He believes vaccines will arouse specific defenses in the tissues of the patient in spite of all contributory etiologic factors of disease. Therefore, the rational diet, proper baths, passive and active exercises, correction of personal cleanliness and alcohol misuse are neglected. The practitioner usually is ignorant of all laws of immunology. It is this want of knowledge which makes him believe the ridiculous statements made by the manufacturers of vaccines.

Here is hearkening to fundamental principles, and by one who knows from many years of active medical practice, while still not losing sight, in fact very much

engaged, of the newer discoveries. Unquestionably the present trend of all basic therapeutic work is the elucidation of first principles. One is here reminded of a statement by the well known physiologist, Carlson, in his recent book on the "Control of Hunger in Health and Disease": Apart from condiments and flavors of food, "the physiological way of augmenting hunger and appetite is moderation in the food intake or increasing the utilization of the food in the body by outdoor living, fresh air, cold baths and physical work." * * * "the readiness with which these tonics (bitters) are dispensed nourishes the popular superstition that there is, or must be, a specific drug remedy for every ailment, a superstition that constitutes the chief aid of the medical quack and the patent medicine vender."

There is one other point I will refer to, the non-specific protein antigens. This is a field that is now being developed. The idea in this phase of therapy is of getting a marked degree of immunity without intoxication through the use of nontoxic substances. At any rate, it repays the osteopath to keep in touch with the immunologist and the clinicians of all schools, even if there is no other purpose than the negative one of seeing how all schools are approaching fundamentals on the several converging lines.

In this work on focal infections it should be understood that we have passed over a mass of instructive and practical etiologic and pathologic data.

* * *

Readers of the JOURNAL are familiar with the importance that Dr. Still attaches to exposure to extreme cold being an etiologic factor of disease. The muscles themselves are not only contracted and thus disturb circulation and nerve endings, as well as producing an imbalance of muscles that readily lead to osseous lesions, but also the fascia is involved which may result in cell asphyxia. Clinically, it has been recognized for many years that atmospheric changes lower resistance and predispose to nutritive changes and liability to infection.

The *Journal of Experimental Medicine*, September, 1916, describes a series of interesting experiments on rabbits, pertaining to exposure to cold in respiratory infections. Of course, in experimental work whether the experimenter utilizes animals or test tubes care has to be taken in applying the conclusions to humans. The authors, Miller and Noble, in their discussion and conclusions develop, among others, the following interesting points: Lowering of general or specific resistance to infection may be considered. Production of such antibodies as hemolysins and agglutinins is affected by the atmospheric temperature, especially however, by heat. On the other hand, changes in the local resistance of the mucous membranes of the upper air passages may be more important. That definite circulatory changes do occur in the upper air passages as a result of varying atmospheric temperature has been observed in animals and also in clinical experiments upon human subjects. In these experiments the results appeared to be due to the direct action of air upon the mucous membranes and not as a reflex from the surface of the body. Probable importance of the local changes in the mucous membranes favoring entrance of bacteria as main predisposing factor in problem under consideration. Changes from low to high temperature seemed to be more effective than the reverse.

* * *

Lambert in the December *Jour. of Exp. Med.* gives the conclusion in his experiments on the comparative resistance of bacteria and human tissue cells to certain common antiseptics as follows:

> Of the antiseptics tested, which include mercuric chloride, iodine, potassium mercuric iodide, phenol, tricresol, hydrogen, peroxide, hypochlorites (Dakins' solution), argyrol, and alcohol, the one which approaches most closely the ideal disinfectant is iodine, which kills bacteria in strengths that do not seriously injure connective cells or wandering cells.

CHICAGO. C. P. McC.

DEPARTMENTS

HOME GYMNASTICS

PHYSIOLOGY OF EXERCISE

ANDREW A. GOUR, D. O.,
Chicago, Ill.

Exercise rightly regulated causes a rapid and healthy change of tissue. It promotes growth by increasing the process of assimilation and causes a more rapid excretion of old tissue. An active muscle is always more richly supplied with blood than one at rest. Up to a certain point the more active a part is the more alive and normal it is. Where activity becomes too great destruction of tissue exceeds its reconstruction and loss of weight results. The constructive process is known as anabolism and the destructive as katabolism.

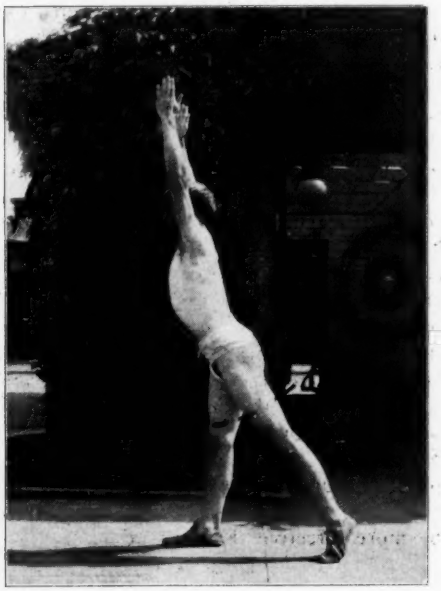


Fig. 37.

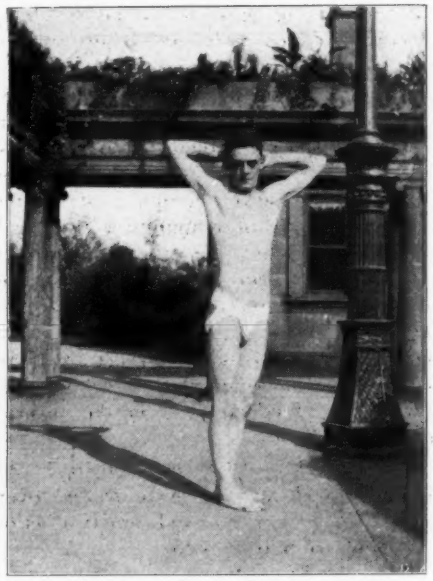


Fig. 38.

Exercise improves the condition of the than in rest, but a greater quantity is being supplied. Oxygen follows the law of supply and demand. The tissues in activity use up more oxygen, the blood is relieved of its latent supply more rapidly and takes away more carbon-dioxide and other poisons. The lungs, skin and kidneys rid the system of poisons more rapidly and the need of more oxygen creates more rapid respiration. The blood being thus enriched with oxygen stimulates all the glands, organs and tissues to greater activity so that every function is stimulated and the organism is refreshed. Unless there is a rapid process of metabolism created by activity, deep respiratory exercises are useless. The change of tissue should be first hastened, then respiratory exercises are useful.

Exercises increasing metabolism not only blood. More oxygen is used during activity creates a need for more oxygen but also creates a need for more food. The tissues changing rapidly need to be renewed. The blood is hastily relieved of its nourishing principles, and this fact is manifested by an increased appetite. This means better digestion and excretion; more food enjoyed and assimilated. Exercise, therefore, will tend to render one normal; if too fat, the weight is reduced; if too thin, more flesh is taken on.

When one is inactive for a long time the system grows sluggish. The muscle fibres are flabby or undergo fatty degeneration; many of the fibres changing to fat. The liver is likely to get torrid from slow circulation and enlarged from overwork. The kidneys are

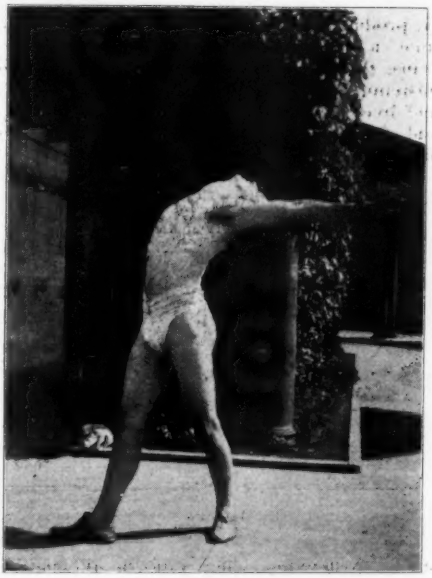


Fig. 39.

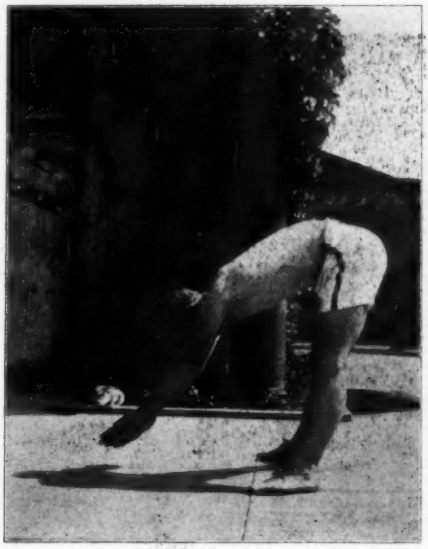


Fig. 40.

overburdened because they are forced to take on to some extent the duties of the skin and lungs as well as their own. The intestines are usually sluggish, peristalsis is slow, excretion slow, and constipation common. In this condition the lower bowel may be the source of autointoxication, because, being incapable of ridding itself of fecal matter with proper dispatch, gases and toxic properties are rapidly formed and some absorbed into the blood stream. With this general state of inactivity the entire system gets clogged up and nature finds relief through cleansing diseases as boils, pneumonia or typhoid fever. A general state of sluggishness usually shows itself by frequent headaches, blurred vision, the "blues," lack of snap and energy, and then comes a breakdown.

Well regulated exercise, combined with good food, bathing, appropriate dress, and the best possible environment will prevent many of our common ills. Exercise tends to bring about a perfect equilibrium of functions, which is not merely an absence of disease, but radiant health. In its general effects exercise so resembles the central thought of adjustment in osteopathy that, although it is not as specific as the latter, yet it is so in keeping with its purpose that no osteopath who ignores it can be said to do complete justice to his patients nor to himself.

While exercise may be said to benefit digestion and metabolism in a general way, in a local sense it can be made to aid portal circulation. This can be done by exercises that react directly upon the liver and portal veins. Trunk rotations and sideways flexions, as well as abdominal exercises, accomplish this purpose. Trunk sideways flexions are especially beneficial,

Fig. 41.

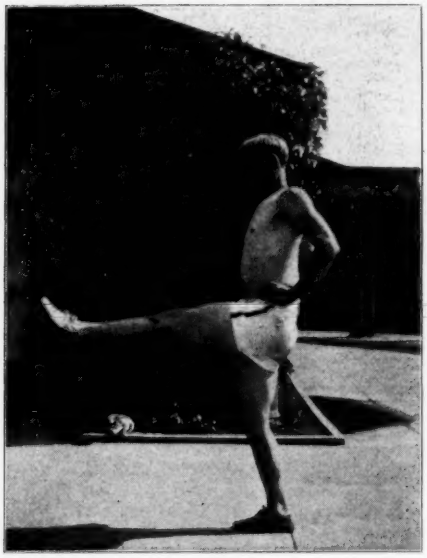


Fig. 42.

because as one bends to the right the liver is compressed, forcing the blood out of it, and at the same time the portal and intestinal veins are extended and their path straightened, making flow through them more rapid. Bending to the left causes an expansion of the liver, producing a suction force and, at the same time, a slight compressing of the intestinal veins, thus is a force pump action produced, hastening circulation through the intestines and liver and stimulating the entire digestive and excretory functions. Trunk rotations and abdominal exercises are supplementary to

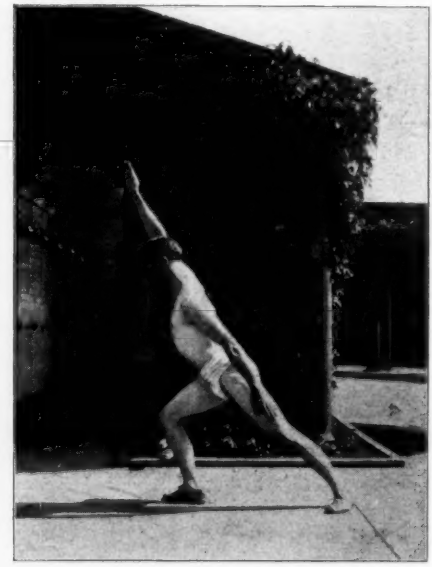


Fig. 43.

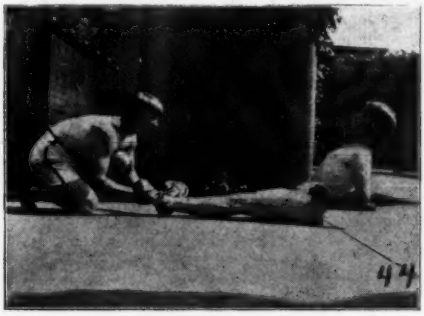


Fig. 44.

sideways flexion. They tone up the natural waist region, raising the viscera, and serve as a natural support. Respiratory exercises not only oxigenate the blood, but form a suction force on the inferior vena cava which drains the liver.

These same exercises are useful and specific in preventing obesity or reducing weight. Fat begins to deposit first at either side of the lumbar spine. When a person begins to grow fat his waist line is the first part to show it. Sideways bending tones up the quadratus lumborum muscles and prevents fat. If one is already over-stout, general exercise, with a reduction of ferinaceous foods and an increase of eliminating foods such as fruits and vegetables, with the specific application of lateral trunk movements, abdominal and respiratory exercises will reduce him to normal.

This class of movements is also useful to prevent ptoses. The stomach and intestines should be held up by the abdominal muscles. These muscles, when in proper tonic condition, form nature's corset, keep the viscera up where they belong and give the natural waist line. The normal physique shows that the depth of the chest is greater than that of the abdomen. Any other relation is not normal. If the chest is shallower than the abdomen it is because the abdomen is too fat and flabby or the chest is too shallow or both. Where the abdominal muscles are not tonic the viscera are allowed to sag and, sooner or later, the intestines and the stomach descend and various forms of digestive disturbances result. A readjustment of conditions by ton-

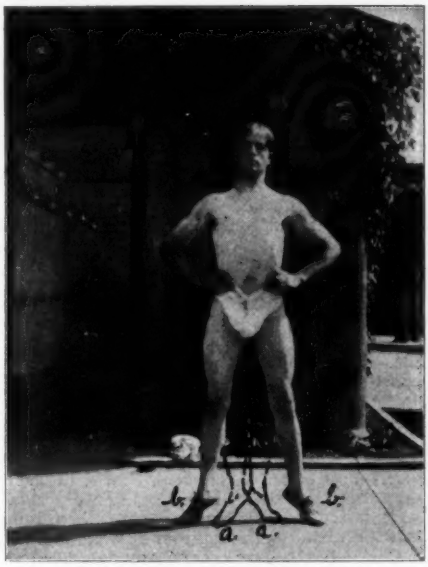


Fig. 45.

ing up the abdominal muscles will relieve most forms of indigestion.

Corsets are bad for several reasons. They pinch the waist and reduce the natural corset, or abdominal and waist muscles, to flabby, fatty, degenerate layers. They compress the lower thorax, weakening the respiratory function by interfering with natural expansion of the lower lung area. They squeeze the liver and interfere with its normal functions. Below the narrowest portion of the corset the intestines are pressed downward, instead of being supported or forced upward, causing pelvic weaknesses and suffering. The modern corset is made to measure and is not as bad as the old style makes. But there is not a corset on the market that does not limit the freedom of the waist muscles and therefore tends to weaken them.

It is generally known but worthy of repetition, that exercise should never follow a meal. It may precede a meal, but should never be taken sooner than two hours after eating for best results. The digestive organs need a rich supply of blood while functioning as vigorously as they do immediately after a meal, and to create a demand for blood elsewhere will give rise to disagreeable or serious complications. Exercise not only interferes with digestion, if taken too soon after eating, but a full stomach itself interferes with freedom of activity. Many animals sleep immediately after a meal, and this is a safer and more physiological practice than the oft recommended walk.

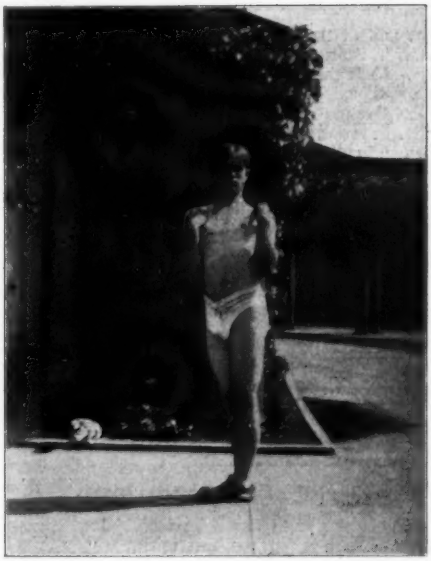


Fig. 46.

39 S. State St.

LESSON SIX

I.—Standing in position, arms at the sides (Fig. 37). (1) Step forward with the left foot,

Fig. 47.

raise the arms slowly forward-upward (b, Fig. 37), and at the same time breathe in deeply, (2) lower the arms sideways-backward, (a, Fig. 37), draw back the foot and at the same time breathe out. Repeat, stepping out with the right foot.

II.—Hands on hips. (1) Lunge forward with the left foot, (2) back to position, (3) lunge with the right foot, etc., alternately.

III.—Lock the fingers behind the head. Keep the elbows well back and the chin in so as to expand the chest. Holding this position (1) twist to the left as far as possible, (2) twist around to the right, etc., several times. (Fig. 38).

IV.—Arms shoulder high at sides. Left foot forward. In this position bend backward two or three times. Repeat the movement with the right foot forward. (Fig. 39).

Try to do this movement without holding the breath. As you bend backward allow the arms to drop a little so as to expand the chest.

V.—Stand with the feet apart, the arms stretched upward in line with the body, elbows and wrists straight. Keeping the arms in this same relative position to the trunk and without bending the knees, bend forward at the hips three or four times. (Fig. 40).

VI.—If the pupil has a horizontal bar, trapeze, or other such apparatus, this is the proper time in the lesson for its utilization. As a substitute for this take a wand, cane or broomstick and stand as in position a, Fig. 41.

Grip the stick tightly and push toward the centre of it, but do not allow the hands to slide along it. (1) Allow the right hand to force the left to position b, Fig. 41; (2) allow the left hand to force the right up to position a, Fig. 41; (3) allow the left to force the right down to position b, right; (4) allow the right to force the left to position a. Repeat several times and then perform the exercise all over again only with reverse force, that is, by pulling away from the centre of the stick, thus pulling down first to one side and then to the other.

VII.—Hands on the hips. Bend the left knee upward to right angle. (Fig. 25). Holding this position, stretch the knee forward four or five times. (Fig. 42). Repeat with the right.

While performing this movement do not lean backward. When you can do this exercise without losing your balance or altering the position of the trunk you possess a high degree of muscular control.

VIII.—Arms bent upward with the elbows close to the sides (1, 1, Fig. 6). (1) Lunge straight forward with the left foot and at the same time forcibly stretch the left arm upward and the right downward (Fig. 43), (2) bring the arms and foot back to position, (3) lunge with the right foot, right arm up and left down, (4) back to position, etc., several times.

Observe the position in Fig. 43. The arms are exactly in line with the body and the backward leg. The back foot should not be tipped, but kept squarely on the floor. These little details are what count in gaining perfect control of the body.

IX.—Lie on the back, the feet under some heavy object, hands on the hips. Keeping the head in line with the body, chin in and chest well expanded, (1) come up to sitting, (2) slowly return to lying. Repeat several times. (Fig. 44).

X.—Keep the feet under the same object as in Ex. IX., but lie face down, hands on hips. By contracting the muscles of the back arch the body up as high as possible from the floor. Hold this position and (1) turn the head to the left, (2) turn it to the right. Repeat at least three times to each side before allowing the body to sink. (Fig. 35).

XI.—Stand with the left hand stretched upward, the right hand on the hip. In this position bend the body to the right three or four times, then, with the right arm up, left hand on the hip, bend to the left.

In bending allow the upraised arm to curl over the head so as to get a good stretch on the muscles of the sides.

XII.—Hands on the hips. Rise on the toes. Supporting the entire weight on the toes, (1) spring off the floor and spread the legs so as to land with the feet apart (b, b, Fig. 45), (2) spring back to first position (a, a, Fig. 45). Repeat several times, keeping high up on the toes.

XIII.—Feet close. Arms bent. Twist the body to the left. (Fig. 46). In this position (1) slowly extend the arms sideways, palms turned up, and at the same time breathe in deeply (Fig. 47), (2) slowly flex the arms and at the same time breathe out. Repeat a few times and then do the exercise with the body turned to the right.

RESEARCH

"CLINICAL OSTEOPATHY"

LOUISA BURNS, M.S., D.O.

A book on the above-named subject, now in preparation, was begun according to plans made with Dr. McConnell. The material was secured from various sources—from a study of osteopathic literature; from the replies to circular letter questions sent widely to members of the profession; from about 2,000 case reports from the Research Institute and the P. C. O. Clinics; and from the personal experience of members of the profession as given in conversation under various circumstances. The actual writing of the original manuscript was done by a number of different persons, whose names are given in the book itself.

All of this material was rather roughly coordinated and printed. (It cost less to have galleys printed than to have the material copied in any other way, and it was more satisfactory.) About 25 galley sheets of each were printed, and these divided among osteopaths all over the country. One full set was sent to each college, to be divided among the faculty members.

A few failed to understand that the galley sheets sent out were to be corrected, and often they waxed sarcastic and emphatic over errors, sometimes most amusingly, sometimes not so amusingly. Some of the criticisms were really too vigorous to print—nor would

we wish to print them. The corrections and criticisms were all brought together upon a new set of the galleys, and the whole thing sent to Dr. McConnell for final revision. This was the most important and most arduous part of the work. The corrected galleys were then sent to the printer. After these corrections have been made five galleys will again be printed, and these will be referred to different people for final revision. The page proof will also be corrected. Thus, it is hoped that no gross errors, at least, will appear in the completed volume. A few of the comments which were returned with the corrected galleys may indicate the variety of opinions aroused by this work, and give some proof of the fact that "the way of the pen-driver is hard."

"You have covered the ground so tersely and so completely that I do not see that much could be added with profit."

"It will be a great book and of untold value to osteopaths."

"I am sure it is going to be most helpful and interesting."

"It all sounds good to me. How happy you must be to be so useful."

"In fact, from the osteopathic standpoint, it is superior to any treatise I have ever seen."

"If the rest of the book is on a par with the work on Typhoid we will not be able to do without it. It is extremely clear and the article on the Blood is of especial interest."

"If the rest of the book reaches the high standard set by the part on "Nervous Diseases"' it will be a very welcome addition to osteopathic literature."

"Ought to be more osteopathic."

"Is truly osteopathic throughout."

"Wish to congratulate you on the clear and concise style."

"Do not understand the paragraphs; why not say what you mean clearly? "

"Such work means a very great deal of work and little thanks."

"Subjects are well classified and diseases well described.'

"Completely up to date."

"Why write on such old and discarded subjects?"

"I want to congratulate you upon the excellent work shown in this book."

"The work is certainly going to be a broad and comprehensive one and will fill up a gap in our literature."

"Advance proofs are certainly mighty creditable."

"Why concentrate upon the lesion theory? As long as we have not sufficient data to complete our knowledge of any disease, we should be frank and open-minded."

"Ought to emphasize bony lesions more."

"Jam bony lesions down his throat."

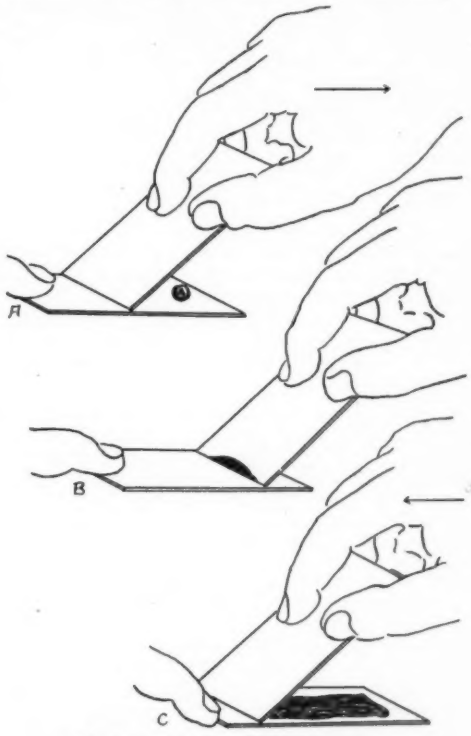
"Why rush the lesion so vigorously?"

"A practical and useful work well balanced, helpful and essentially osteopathic."

TECHNIQUE OF BLOOD SMEARS

C. R. Atzen.

This technique is given in the hope that we may have more uniformity in the thickness and evenness of the blood smears sent in for examination. As the individual blood cells are studied as to size, shape, depth of staining reaction, configuration of nuclei, etc., it is important that the blood be not distorted in the process of making smears. The following



Method of Making Blood Smears

technique is at present being used here with these objects in view, and it is hoped that practitioners will try and follow these instructions when sending in blood for examination.

The slides are cleansed with alcohol and polished with a clean soft cloth.

The lobe of the ear or finger tip is cleansed of grease and epithelial debris with soap and water and then dried *thoroughly* with a clean cloth.

Prick the part with some one of the many

patent spring needles on the market, a round sewing needle, a clean steel pen with one nib broken off or a Hagedorn surgical needle.

Wipe away the first drop of blood. Touch one end of a slide to a drop of blood the size of a black headed pin. Lay the slide on a firm flat surface with the drop of blood to the right; steady the slide with the index finger of the left hand. Hold a second slide by the edges, between the thumb and first two fingers, place one end of this slide on the other just to the left of the drop of blood; the edge to be pressed lightly on the lower slide (position a). Pull the slide to the right until it just touches the drop of blood, when it will run along its edge by capillary attraction (position b). Now push the slide evenly, smoothly and fairly rapidly to the left making the smear (position c).

The thickness of the smear can be modified by the speed that the slide is moved and the angle at which it is held with the horizontal slide. The best angle is about 45°. It is best to have the smear thin out as the slide advances so as to vary the thickness of the smear. These smears are of no value in making the Widal test. If typhoid is suspected put at least fifteen drops of blood in a small clean bottle and stopper securely.

EDUCATIONAL

JENNIE A. RYEL, D. O.

Because in a single sentence a difficult situation is so clearly explained, I desire to quote from a letter recently received. The writer has merely expressed what hundreds of osteopaths must in honesty acknowledge as descriptive of their own experience. It seems we must all plead more or less guilty. "I have enjoyed a very good practice since I left school, and consequently have neglected the work that really should have been in connection with the schools."

The problem of educating the public is in our midst, there to remain until every practicing osteopath, man or woman, in city or country, assumes his or her share of the educational responsibility. Regardless of the degree of success we have attained, there remains the fact of duty to the science and its future. Osteopathy will be elevated to its rightful place of dignity before the world when you and I so determine and fulfill the world's requirements. Only as our methods of approach make successful appeal to the public will the hand of fellowship be granted us. We can do no better than to study the public, earnestly desirous of finding out what they want and how we must shape our educational activities in order to insure their acceptance with the people. In speaking of the late George C. Boldt, of the Waldorf-Astoria Hotel, as the pioneer in the development of the American hotel, a colleague said, "He it was who taught us to let the public decide."

The people who do not accept osteopathy all need education, but the method of application must be varied according to individual or class need.

First there is the man who has not been told about it, and there rests with us the telling; but in the undertaking we must not attempt to use the same method with the unlearned and with the scholar. If the printed page does not appeal, there still remains the spoken word and the picture. Literature alone is not enough. The illustrated lecture has supplementary value we cannot afford to overlook. The Christian Scientists recognize the efficacy of the dignified lecture in the furtherance of their truth.

Then there are those who have heard about osteopathy, but have failed to give the matter serious consideration. The obstacle may not be lack of earnestness but of understanding. If need be, let us re-tell seven times or seventy times seven.

For the man whose knowledge of the human body is not sufficient to enable him to grasp the truth as it is presented, there is necessary even *more education*. The essential basic knowledge must be imparted and here we will find use for the illustrated lecture and the moving picture film. The boys and girls now in school are the men and women of to-morrow. Let us give them the square deal the present generation did not get.

Young people deciding the important question of a life work represent an urgent educational need. Unless we present to them osteopathy as a field for study and as a profession we are failing our science. How many from *your* high school are planning to study osteopathy?

Necessary also is the turning of people from faith in drugs to faith in drugless methods. Just so long as we permit folks to rely on the common drugs in the medicine closet for relief in simple ailments we must be neither suprised nor grieved if they turn also to drugs in grave crises. An all round educational movement will include the teaching of drugless methods of meeting those minor conditions for which few families can afford to call a physician.

Doctor, as we stand at the door of this new year with its opportunities and its obligations, will you review the situation in your own field to see if *you* have done *your* full part as an osteopathic educator? This work can never be accomplished except by the cooperation of all, because it vitally concerns each.

Does your community recognize a constructive force in osteopathy?

Are your patients auxiliaries in the pushing forward of the cause of osteopathy, or do they merely take treatments?

A first step in organization for greater efficiency is the creation of State committees of public education to co-operate with this department. If you desire to aid in the movement will you so express yourself to us or to the secretary of the State society, for a State committee will be useless unless actively backed by interested individuals. Cannot we start the new year enthusiastically organized for efficient public education?

MENTAL THERAPEUTICS

PSYCHOLOGY—INSTINCT

G. H. Snow, A. B., D. O.,
Kalamazoo, Mich.

All the actions we call instinctive are reflex, and these reflex co-ordinations are inherent in the organism. Some are present at the time of birth, others develop later as the growth of the organism may require, the altruistic instincts being the last to develop. The nervous system is so organized that, so far as the acts we call instinctive are concerned, it must act in a definite way when a particular sensation image or perception is present. The dog must pursue the rat, he cannot do otherwise. But we notice that experience modifies his action. If the first time he attacks a rat he is severely bitten, the second attack is made with more caution and he watches for a chance to seize the rat when there is least likelihood of his being bitten. Instinct, like all organic activities, is subject to the general laws of development.

In comparing the instincts possessed at birth by man and those of the lower animals it is found that the new born babe possesses fewer instincts than the lower animals. But the nervous system of the babe develops so rapidly that it practically possesses a complete set of nervous reflexes, except those of the sexual processes, when three years old. Attempts have been made to make a distinction between reflexes and instinct and the chief difference seems to be that instinct depends more upon the operations of the higher nerve centers than do reflexes.

As to the origin of instincts, all agree they are racial habits transmitted by heredity, but as to how they originally became established there is a difference of opinion. The theory of organic selection seems to contain the fewest difficulties and objections, and as Angell says: "The crucial point in this theory is the supposition that even tentative and imperfect accommodations, with or without conscious direction, may serve to preserve the life of a species during the critical period when the instinct in its entirety is forming, and thus give it opportunity to become permanently imbedded in the organism as both a structural and functional attribute. * * * It gives scope for the play of intelligence, in assisting in the formation of useful reactions, without going to the indefensible extreme of assuming that all valuable co-ordinations have had such intelligent origin. On the other hand, it offers a practical hypothesis as to the manner in which movements of essentially reflex character may have become chained together in instinctive reaction."

All are agreed as to the function of instinct, and that it represents those forms of reaction that were most useful to man and animals in effectively maintaining themselves against environment, rigors of climate and the assaults of their enemies.

When we consider the instincts of man we are confronted with tendencies, representing racial experiences, that show the pressure of the struggle for existence that has been waged since man's first appearance on earth. This struggle for existence has so changed man's condition that the chief value of some of the instinctive reactions probably consist in the intra-organic physiological changes which they produce. For instance, crying under certain emotional states seems to relieve the circulatory congestion in the brain and assist in relaxing the tensed muscles and thus help the organism to return to its normal condition.

Instinct and emotion are so closely related that it is very difficult some times to make a distinction between them, but a partial distinction is made in the chapter on emotion. The human instincts that are usually given are affection, imitation, fear, anger, sexual love, shyness, curiosity, play, sympathy, constructiveness, secretiveness, acquisitiveness, confidence, modesty, jealousy and pugnacity.

We have mentioned the fact that some instincts are present at birth and others are manifested later, but it is seldom that they all occupy the place they should to bring about the perfect development of the individual. To produce this perfect development certain objects that call forth the different instincts should be present at certain ages, and if they are not there is a gap in the psychic constitution that future experiences cannot supply. Instinct starts a habitual char-

acteristic action towards a given object and inhibits an action toward others. This gives a suggestion as to the important part played by instinct in the formation of habit and also of character. Many of the perversions of life are the result of the instinct not being given its natural stimulus and discharge.

The motor reactions which the different instincts produce are of special interest, but only a brief reference to them can be given here. A discussion of the motor phenomena of fear will be found in the March, 1915, issue of this JOURNAL, but a few additional facts will be given concerning it. Loud noises seem especially to produce fear and also to intensify it. For instance, during a severe wind and rain storm heavy thunder intensifies one's fear. Dark objects at night and dark places produce a peculiar, gruesome fear, while high places produce a peculiar sickening fear. Schneider says, "It is a fact that men, especially in childhood, fear to go into a dark cavern or a gloomy wood. This feeling of fear arises, to be sure, partly from the fact that we easily suspect dangerous beasts may lurk in these localities—a suspicion due to stories we have read or heard. But on the other hand, it is a surety that this fear at a certain perception is also directly inherited. Children who have been carefully guarded from all ghost stories are nevertheless terrified and cry if led into a dark place, especially if sounds are made there. Even an adult can easily observe that an uncomfortable timidity steals over him in a lonely wood at night, although he may have the fixed conviction that not the slightest danger is near.

One peculiar manifestation that should be be noted is terror paralysis, where one remains perfectly still and cannot move. This is similar to the so-called death shamming instinct of some animals. But really there is no shamming about it, they are motionless from fear and cannot move. The beast of prey does not notice the motionless bird because he does not see it. And the reason he does not see it is that being motionless it does not stimulate his optic nerve as it would if it were in motion.

There is a special pathological condition of fear that physicians have to deal with that is called agroaphobia. In this condition the patient fears to cross a large open space alone and waits until he can cross it in company of others, or else take a circuitous route that enables him to reach his desired destination without crossing the wide open space.

That story in the old school reader about the "bashful young man" is a good illustration of the antagonism between the instincts of bashfulness and sociability. In some individuals these two instincts strive for supremacy during the life of the individual. But man is naturally a social being, and those who turn from human companionships are in need of the care of a skillful physician. And in many cases of neuresthenia and other nervous troubles this particular symptom has often taxed to the utmost the skill of the physician.

Many of the instincts are transient and exist for a certain period and then give place to others. This has been briefly referred to before, but it has such an important bearing on the development of the individual that I quote at some length what James says concerning it : "In all pedagogy the great thing is to strike the iron while hot, and seize the wave of pupil's interest in each successive subject before its ebb comes, so that knowledge may be got and a habit of skill acquired—a headway of interest, in short, secured on which afterward the individual may float. There is a happy moment for fixing skill in drawing, for making boys collectors in natural history and presently dissectors and botanists; then for initiating them into the harmonies of mechanics and the wonders of physical and chemical law. Later, introspective psychology and the metaphysical and religious mysteries take their turn; and last of all, the drama of human affairs and worldly wisdom in the widest sense of the term. In each of us a saturation point is soon reached in all these things; the impetus of our purely intellectual zeal expires and unless the topic be one associated with some urgent personal need that keeps our wits constantly whetted about it, we settle into an equilibrium and live on what we learned when our interest was fresh and instinctive, without adding to our store. Outside of their own business the ideas gained by men before they were twenty-five are practically the only ideas they shall have in their lives. They *cannot* get anything new. Disinterested curiosity is past, the mental grooves and channels are set, the power of assimilation gone. If by chance we ever do learn anything about some entirely new topic we are afflicted with a strange sense of insecurity and we fear to advance a resolute opinion. But with things learned in the plastic days of instinctive curiosity we never lose entirely our sense of being at home. There remains a kinship, a sentiment of intimate acquaintance, which, even when we know we have failed to keep abreast the subject, flatters us with a sense of power over it and makes us feel not altogether out of the pale.

"Whatever individual exceptions to this might be cited are of a sort that prove the rule."

CORRESPONDENCE

KIRKSVILLE A. O. A. AUXILIARY

The second meeting was held December 5th and a most encouraging increase in attendance was noted from the October meeting, there being nearly 500 present. The program, with President Wilson in the chair, opened with the A. S. O. Glee Club. This was its first public appearance and the results fuily showed the hard work the leader, G. M. Stevenson, and his associates had done, for the audience would not stop applause until there was an encore. Then followed the reading of the minutes of the previous meeting and the reading and adoption of a constitution.

Dr. George Laughlin was then introduced and said that every osteopath who wished to show the right attitude toward his work and profession should ally himself with every organization that makes for the progress and permanency of osteopathy, and working for personal gain alone would not insure success, but that co-operation with one's fellow workers for the advancement of the science would get results. He urged that every student affiliate himself with the Auxiliary.

After the students joined with the Glee Club in singing "America" the president introduced Dr. Canada Wendell, of Peoria, president of the Illinois Osteopathic Association, who had been sent by the A. O. A. to give the main address of the meeting. Dr. Wendell had stopped in to see the "Old Doctor" just before the meeting, and began his talk by giving us a message from him. "Daddy" said: "We are going to have some wash days. We want to wash out whiskey and drugs. M. D. only means more drunks." Then Dr. Wendell told of the legislative work in Illinois and the hope of some "wash days" there, emphasizing the benefits of harmonious organization. He gave some very interesting practical work, and his illustrations all had points of great value to the students. His talk drove home the fact of the completeness of the osteopathic therapy.

KATHARINE F. LAWRENCE,
Secretary.

HIGHER SCIENTIFIC CRITICISM

In the year's experience that I have just had in teaching at the A. S. O. I found that whereas in presenting medical subjects statements could be backed up with a mass of testimony of both technical and laboratory observations, on the other hand in presenting osteopathic principles and technic one had only one's unsupported word or idea and his *ipse dixit* of his own personal experiences, aided here and there by that of a few others. This contrast would not help but affect unfavorably a large majority of the minds of the student body.

The older practitioners came to the schools with a firm conviction and enthusiasm based on long and unfortunate experience with medicines, and glorious and often immediate, results in osteopathy. Enthusiasm supplied the motive force, and all the training needed was knowledge of anatomy and physiology, which was then applied according to the individual talent, with what wide variations in success we all know. But this second generation of students now in our schools seems to take what they believe to be a broader point of view.

Teachers recruited from medical schools and without osteopathic clinical experience bring ideals of scientific criticism, their one point of superiority, and consciously or unconsciously allow or cause osteopathy to suffer by comparison. That osteopathy would not suffer, but vastly profit, if it were possible to present its work in the same way, we all of course understand. We must take steps to meet the need for higher scientific criticism, but we must see that the point of view is *osteopathic in the curing of cases,* and we must see that the facts are gathered from the profession or produced in the Research Institute and made available to students.

Each convention makes great progress in some particular way. Could we take any step forward more effective or far-sighted than by raising a fund to be added to the endowment fund of the A. T. Still Research Institute to be devoted especially to the study of the mechanics of the human spine, and framework generally, the etiology of lesions, the dynamic factors necessary to produce and maintain and correct them, the variations in shape of articulations, the mechanical laws governing these shapes and motions?

Dr. Still says that to know any single bone in its entirety would close both ends of an eternity. He further says, or asks, "Did you ever see a coon try to climb two trees at once?" Let us climb the osteopathic tree and explore it to its farthest branch. Let the presence of the Old Doctor inspire us to take the most vigorous possible step in this matter. If we want anything more in osteopathic schools it is more osteopathy. The schools cannot put it in unless it is first prepared. Let us prepare it. Then instead of insisting on an increase of time, which means an increase in medical subjects on specialties, it will be possible to require courses that cover certain specified ground.

ERNEST E. TUCKER, D. O.
NEW YORK, N. Y.

RAPID GROWTH OF NEW ASSOCIATION OF OPTHALMOLOGY AND OTO-LARYNGOLOGY

Such general interest has been manifested in the new Association of Ophthalmology and Oto-Laryngology that dues have been received

from nearly a hundred members, with almost daily additions to the list.

In order to become a charter member in the new association, and to be present at, or participate in, the excellent program being arranged for Columbus in the three days preceding the general program, send your dues (50 cents) to the secretary, Dr. C. L. Draper, 535 Majestic Bldg., Denver, Col.

The list of members of the A. O. A. of Ophthalmology and Oto-Laryngology is as follows: L. S. Larimore, Caldwell, Kan.; C. C. Reid, J. D. Carpenter, C. L. Draper, Denver; J. H. Bailey, Philadelphia, Pa.; A. J. Molyneux, Jersey City Heights, N. J.; Josephine Morelock, Grand Junction, Col.; S. V. Robuck, Chicago, Ill.; U. M. Hibbetts, Grinnell, Iowa; W. E. Beets, St. Joseph, Mo.; Geo. B. Clark, Detroit, Mich.; H. J. Marshall, Des Moines, Iowa; W. B. Lynd, Los Angeles; E. H. Fritsche, Philadelphia; P. D. Pauls, Mountain Lake, Minn.; W. E. Abegglen, Colfax, Wash.; W. S. Nicholl, Philadelphia; Mary Quisenberry, Lyons, Kan.; E. J. Breitzman, Fond du Lac, Wis.; John Deason, Chicago; Wilson Bean, Easton, Pa.; Adam Baker, Dubuque, Iowa; Chas. A. Ross, Cincinnati, Ohio; James D. Edwards, St. Louis, Mo.; J. F. Reid, Warren, Ohio; Warren A. Sherwood, Lancaster, Pa.; Sarah F. Pugh, Fresno, Cal.; Emma Purnell, Lancaster, Pa.; G. W. Reid, Worcester, Mass.; W. E. Bailey, St. Louis, Mo.; W. F. Englehart, St. Louis, Mo.; F. A. Englehart, Oklahoma City, Okla.; E. J. Martin, Ellsworth, Kan.; G. W. Moore, Philadelphia; J. Henry Hook, Grand Junction, Col.; Eugene Pitts, Bloomington, Ill.; Wm. L. Grubb, Pittsburg, Pa.; A. L. Bondy, Denver; R. T. Quick, Owana, Iowa; G. A. Cobb, Port Arthur, Tex.; R. H. Coke, Louisville, Ky.; Stanley M. Hunter, Los Angeles; Clara Wernicke, Cincinnati, Ohio; Robert H. Dunnington, Philadelphia; Sallie M. Connor, Chicago; A. J. Little, Chicago; J. Werlin Achor, Tampa, Fla.; L. C. Harrison, O'Elwein, Iowa; M. M. Brill, New York City; C. A. Gable, Chicago; E. B. Carney, Fort Scott, Kan.; W. D. Bowen, Richmond, Va.; W. C. Hall, Indianapolis, Ind.; Geo. A. Wells, Fort Collins, Col.; Burdsall F. Johnson, Philadelphia; W. J. Mulrony, Yuma, Ariz.; Georgie W. Borup, St. Paul, Minn.; C. C. Hitchcock, Milwaukee, Wis.; Chas. E. Taylor, Beaver Dam, Wis.; W. E. Reese, Toledo, Ohio; L. J. Bingham, Ithaca, N. Y.; Etta Chambers, Geneseo, Ill.; J. M. Watters, Newark, N. Y.; F. F. Woodruff, Denver, Col.; Norman C. Hawes, Gouverneur, N. Y.; L. V. Andrews, Algona, Iowa; N. A. Ulrich, Kent, Ohio; R. L. Price, Jackson, Miss.; E. L. Harris, Marietta, Ga.; Geo. M. McCole, Great Falls, Mont.; Wm. Otis Galbreath, Philadelphia; Anna Holme Hurst, St. Joseph, Mo.; B. C. Epperson, Denver; G. V. Webster, Carthage, N. Y.; A. B. Smith, Fairmount, West Va.; W. C. Dawes, Bozeman, Mont.; G. F. Wagoner, L. E. Wagoner, Creston, Iowa; F. P. Millard, Toronto, Can.; F. P. Manchester, Bayonne, N. J.; Ethel L. Hearst, Salina, Kan.; T. J. Ruddy, Los Angeles; C. M. LaRue, Lancaster, Ohio; E. H. Bean, Columbus, Ohio; W. V. Goodfellow, Los Angeles.

STATE AND LOCAL SOCIETIES

ARKANSAS—At the meeting of the State Association held in Texarkana Nov. 20 and 21, program of which was printed in the last issue, business of importance was transacted. A Constitution similar to that of the Illinois Society was adopted and the Michigan Declaration of Principles. It was voted to incorporate the organization, and a Legal Defense Department was organized, which will be under the direction of George F. Whitehouse, of Chicago.

The following officers were elected: President, A. W. Berrow, Hot Springs; vice-president, C. O. Paul, Eureka Springs; secretary-treasurer, Etta E. Champlin, Hope; trustees, A. H. Sellars, Pine Bluff; J. Falkner, Texarkana; C. A. Champlin, Hope.—ETTA E. CHAMPLIN, D. O., *Sec.*

CALIFORNIA—The Woman's Osteopathic Club met on Nov. 7, when Eva Kate Coffey lectured on Zonetherapy, with demonstrations and case reports.

COLORADO—The Denver Osteopathic Association held its annual session following dinner Nov. 24, with about fifty present, the meeting being held in the nature of a celebration of the final enactment of the Medical Law after many years of fighting. D. A. Strickler, M. D., secretary of State Board and Chairman of the National Federation of State Medical Boards, was one of the speakers. D. L. Clark, Denver, one of the two osteopathic members on the board, made a notable speech, and he was given an ovation because of his untiring efforts in behalf of osteopathy in the State.

The following officers and committee chairmen were elected: President, C. C. Reid; vice-presidents, C. M. Jones, G. W. Bumpus; secretary, Sarah Louise Balfe; treasurer, Cara S. Richards, all of Denver. Committees: Program, R. R. Daniels; Membership, J. A. Stewart; Publicity, C. L. Draper.

Several out-of-town members of the profession were present, and at the close a unanimous vote of appreciation was extended to D. H. Craig, the outgoing president, and G. W. Perrin, chairman, for the excellent programs and lectures of the past year. The association will hold monthly meetings.

THE WOMAN'S CLUB OF DENVER recently elected Carrie A. Bennett, D. O., vice-chairman of the

Social Science Department, and as such she will preside at all executive meetings of that department during the year. These osteopathic physicians are members of the club, Drs. Cherry, Richards, and Bennett being members of the Board of Directors.

THE MEDICAL LAW has been announced by the Governor after receiving a majority of almost 15,000 votes at the recent election. D. L. Clark, Denver, and Rodney Wrenn, of Trinidad, both osteopathic physicians, have been appointed by the Governor to membership on the board, which now consists of nine members.

ILLINOIS—The Chicago Association held its December meeting on the 7th at Hotel Sherman. In addition to an excellent attendance of the local profession about a score from out of the city were in attendance.

J. A. Overton, of Tuscola, was the speaker of the evening. His subject, "Handling Acute Diseases by Osteopathy," was of unusual interest. His belief, based on more than a dozen years' experience in handling all forms of acute conditions and obstetrics, is that after osteopathy has been generally recognized and used by the public that there will be very much less chronic disease than at the present time. He urged hospitals for the colleges where experience in acute practice could be given. He urged more practitioners to develop for this field of work.—S. V. ROBUCK, D. O., *Sec.*

DISTRICT No. 4 ASSOCIATION held its first meeting of the winter Nov. 18, with Louisa Burns, of the A. T. Still Research Institute, as the guest. Her subject was "Fifteen Years in Research Work." The address was interesting, full of information and valuable suggestions and aroused new enthusiasm. G. E. Thompson, of Peoria, was elected councillor and Estella Bovee, of Peoria, was elected secretary.

THE REGULAR bi-monthly meeting of the Third District Illinois Osteopathic Association was held in Dr. Hemstreet's offices, Galesburg, Ill., Dec. 20. Prof. A. J. Hinkelman, of the Galesburg Pathological Laboratory, read an instructive paper on laboratory diagnostic measures.

Plans were made for the State Association meeting to be held in Galesburg the 24th, 25th and 26th of next May.—F. G. THIELE, D. O., *Sec.*

IOWA—The Second District Society held its annual meeting in Davenport Dec. 7. President's address was delivered by Ellen Herrington, Iowa City; "Diet for Special Cases," Augusta Tueckes, Davenport; "Colitis," Mabel Cleveland, Iowa City; "Correct Diagnosis in Rheumatic Affections," J. R. Johnson, Clinton. General discussion and business session.

The evening meeting consisted of a Round Table discussion of "Pneumonia" by S. B. Miller, of Cedar Rapids, and C. N. Stryker, Iowa City.

The following officers were elected: President, M. A. Barr, Muscatine; vice-president, T. Y. Stelle, Rock Island; secretary, A. M. Leffingwell, Muscatine; treasurer, Augusta Tueckes, Davenport; trustee, S. B. Miller, Cedar Rapids.

THE SIXTH DISTRICT Association met at Missouri Valley Nov. 16, when the following program was presented: "Colds," Dr. Anderson, Audubon, and Charlotte McCuskey, Council Bluffs; "Influenza," Dr. Brown, Council Bluffs. After dinner with Drs. Gamble a business session was held, at which a Declaration of Osteopathic Rights and Principles was adopted and recommended to the State Association for adoption. Following the business session "Tonsillitis" was discussed by Harry W. Gamble, Missouri Valley, and "Pneumonia" by Rolla Hook, of Logan, followed by general discussion of "Infantile Paralysis."

NEBRASKA—The State Board of Osteopathic Examiners will hold their next meeting in Lincoln, Neb., at the Lindell Hotel, on Thursday and Friday, Feb. 8 and 9, starting at 9 o'clock Thursday morning, sharp.

Address all communications to Dr. C. B. Atzen, Omaha National Bank Bldg., Omaha, Neb.

NEW YORK—The New York City Society held its regular monthly meeting at the Murray Hill Hotel Dec. 16. The following program was presented: "What is Osteopathy, Anyhow?" John W. Banning, Brooklyn; "Osteopathy Applied to Infectious Diseases," Eugene Clark Link, Stamford, Conn.; "Osteopathy Applied to the Ear, Nose and Throat," John Deason, Chicago, Ill.

THE HUDSON RIVER NORTH SOCIETY were the guests of W. E. and Harriet Owen, of Hoosick Falls, for its monthly meeting, Nov. 11. The following officers were elected for the coming year: President, Wm. Smiley, Albany; vice-president, Emma W. Thompson, Schenectady; secretary, Helen J. Beatty, Johnsonville.

OKLAHOMA—The Oklahoma Association held its annual meeting in Blackwell Nov. 17, when the following officers were elected: President, W. S. Corbin, Chickasha; vice-president, Clara Mahaffey, Oklahoma City; secretary-treasurer, Ernest Ewing, El Reno. Another meeting during the month of June will be held, place and date announced later.—ERNEST EWING, D. O., *Sec.*

PENNSYLVANIA—The Western Pennsylvania Association met in Pittsburgh Dec. 16, with a good representation of the profession of the district present. The guest of honor was George V. Webster, of Carthage, N. Y. His discussion of "Acidosis" was of great interest.

At the banquet "Infantile Paralysis" was the subject of general discussion, followed by papers on "Zonetherapy," by H. D. Bryan, of New Kensington, and Mae H. Van Doren, of Pittsburgh. —R. J. DUNBAR, D. O., *Sec.*

RHODE ISLAND—The Rhode Island Society held a meeting Dec. 9. Reports were made from the committee in charge of the Children's Free Clinic, and also reports from the A. T. Still Research Institute. A committee was appointed to arrange for an osteopathic library for the State Society.

SOUTHWESTERN—At the annual meeting of the Southwestern Association, held in Blackwell, Okla., the program of which was printed in the last number, the following officers were elected: President, F. A. Englehart, Oklahoma City; vice-president, P. W. Gibson, Winfield, Kan.; secretary-treasurer, R. O. Singleton, Mineral Wells, Texas. The convention will be held in Mineral Wells, Texas, next November.

WASHINGTON—The King County Association met Nov. 15, when A. B. Cunningham, president, read an excellent paper on "Diagnosis."—W. E. WALDO, D. O., *Cor. Sec.*

NOTES AND PERSONALS

Radium and Cancer: The announcement was recently made by the Crocker Cancer Research, a three-million-dollar subsidiary of Columbia University, that radium used in treating certain forms of cancer results in the rapid extension of the growth rather than in reducing it. This appears to be another instance of the fact that the use of much developed in Medical Research and hailed as a specific increases rather than cures the evils it seeks to destroy. That not a little of the specific treatment which has received such attention in the last few years is capable of doing great harm, though it may have the possibilities of good, is admitted on every hand.

Much of our research work seems, therefore, to be done in circles. It first develops some form of treatment for some malady and then discovers from clinical results that, while good may be accomplished, harm is very much more apt to follow. When our researching is turned along the line that the body is a self-adjusting, self-curing organism within the limit of its ability to adjust and react to environment, and the cause of these failures are sought within the body itself, and being most probably due to the food it takes, the labor it performs, the environment with which it is surrounded, we shall at least not be introducing into the body that which aggravates rather than mitigates its ills.

Washington Forbids Surgery: Some months ago Clyde L. Bonham, of Seattle, was arrested, according to newspaper reports, for practicing surgery in operations upon the tonsils. The lower court decided to test the medical practice act and imposed a fine of $1 and costs. The case has recently been decided by the Supreme Court reaffirming the verdict of the trial court, and holds that under the law an osteopath, whatever his qualifications otherwise, is not entitled to practice surgery, this privilege being reserved for those who have a diploma and license to practice medicine and surgery.

From the standpoint of the JOURNAL there would be perhaps no special objection to this decision that a license to practice osteopathy did not necessarily include the right to do operative surgery if the same rule were applied to graduates of drug institutions. No one should be allowed in any States to hold himself out as an operating surgeon unless he has received special training and due apprenticeship through hospital service to qualify him for the same. Drug medication is one thing, osteopathy is another, and operative surgery is still a third, and there is no reason why this field should not belong to the osteopath as much as to the M. D. if he qualifies by due training and interneship for his work. When public sentiment makes this demand the legislatures will recognize it, and the practice of surgery will be differentiated, as it should be.

Osteoblast: This will be the last chance to subscribe to the beautiful A. S. O. Annual. Mr. R. D. Stephenson has proven such an efficient editor-in-chief that the book is already in the hands of the printer, and only the number of copies subscribed for will be ordered. Subscriptions close Feb. 1.

This edition of the *Osteoblast* will cost approximately $2,500, and is a work of art from cover to cover. The binding is a fine, semi-flexible cowhide. The price is $2.50, with an additional charge of 25c. if the purchaser wishes his name stamped in gold on the cover. For information write Mr. Perrin T. Wilson, 303 South High Street, Kirksville, Mo.

A Good Appointment Book: E. H. Cosner, D. O., Reibold Bldg., Dayton, Ohio, has a very excellent appointment book for use of osteopathic physicians. The book is arranged for three patients per hour and about 40 patients for the day. It is of convenient size, easy to use and would pay for itself many times each year. It is permanent and may be used as a day-book from which posting is done where accounts are charged as well as appointment book. It is printed on excellent ledger paper, well bound, half leather, and sent postpaid upon receipt of $1.

Therapeutics of Activity: This is the title of a new work on corrective and routine exercises by Dr. Andrew A. Gour. The author has drawn both from instruction and study in Europe and America, and from a wide practical experience and application of his work as teacher and physician. The work is a plea for practical gymnastics, and a most reasonable and clear demonstration of the subject.

After devoting about 50 pages to the basic principles of gymnastics the author takes up the division of home gymnastics, which covers the work we as osteopathic physicians should do in improving and maintaining their own health and efficiency. As the JOURNAL has pointed out the fact that we do considerable muscular exercise in the course of a day is the greater reason we should do systematic exercise once or twice a day to maintain a normal development. Good physical condition does not come from over development of certain muscle groups as will result from home osteopathic practice, but from symmetrical development of all muscle groups, and the overdevelopment should be made symmetrical by well directed home gymnastics of unused muscle groups.

The author then takes up corrective gymnastics which osteopathic physicians can use to advantage as an aid to their work with patients. These are specific and concise and will be found practical and helpful. The book deserves a wide circulation. It contains over 400 pages and 350 illlustrations and photographs. Order of the author. See advertising pages of JOURNAL.

Personals: Samuel L. Scothorn, of Dallas, Texas, has been made a member of the University Club of that city. The club, after being informed of the course of instruction leading up to the degree of Doctor of Osteopathy, accepted it along with the degree of Doctor of Medicine as qualifying one for membership. Dr. Scothorn is also president of the State Board of Medical Examiners.

J. D. Edwards is now located in the Chemical Bldg., St. Louis, where he limits his practice to eye, ear, nose and throat conditions. He received the M. D. degree a few months ago.

Dr. Ada A. Achorn, one of the pioneers of osteopathy in the East, was given a farewell luncheon at the Lenox Hotel by the Boston Osteopathic Society recently on the eve of her departure for Los Angeles, where she will spend the winter. Appropriate addresses were made by many of her co-laborers in Boston and near-by cities.

J. E. Anderson, D. O., of the Dalles, Ore., will receive congratulation of his many friends in the profession on his re-election for a third term in the Oregon Legislature. Dr. Anderson has also served as Mayor of his town for three terms.

C. Paul Snyder, of Titusville, Pa., has sold his practice, and after Jan. 1 will be associated with his brother, James C. Snyder, of Philadelphia, Pa.

St. George's for the Winter: Dr. St. George Fechtig, 37 Madison Ave., New York City, announces that Miss M. F. Wister, an experienced resort manager, will be in charge of his house at Sutherland, Fla., for the winter. Dr. J. H. B. Scott, of Columbus, Ohio, will be the osteopathic physician in charge.

Clinics in Full Blast: Newspapers of the cities throughout the country have recently made frequent mention of the opening of new osteopathic clinics. One of the new clinics which appears to be flourishing is that at the Niedringhaus Memorial, St. Louis, conducted by Drs. Charles Zimmerli and Caroline Weber. This clinic has special hours and attendants for women and children, and it is proposed to do orthopedics, minor surgery and treat alcoholism.

The Free Clinic at the Harlem Avenue Christian Church, Baltimore, conducted by Harrison McMains, where over 600 patients were treated last year, has been opened for the winter.

Rev. A. H. Leo, M. D., of the Norris Square Methodist Church, of Philadelphia, assisted by Dr. Ira W. Drew, has a well patronized clinic for children under sixteen years of age.

The Clinic Committee of the A. O. A. recently had a meeting to make additional plans for the year, and the prospects for increased work and an enlarged field of activity are particularly good.

Statue of Dr. Still: The *Washington Star* in a recent issue reproduces a photograph of the statue being made by the well known sculptor, Julian Zolnay, of that city, of Dr. Still. In the notice accompanying the photograph the *Star* gives a description of Dr. Still, the time and customs represented by the statue and his contribution to science, as represented in osteopathy.

It is understood that the statue will soon be ready for setting up upon the public square in Kirksville.

Massachusetts College Dedication: The Massachusetts College of Osteopathy with appropriate exercises recently dedicated a new addition to its equipment. The Bishop of the Episcopal Church of Massachusetts was the officiating minister, and the Mayor of the city of Cambridge and the Judge of the County Municipal Court were among the speakers. Rev. Francis L. Beal, president of the college, presided. Two gifts totaling $1,500 toward an endowment were announced.

According to reports the amphitheatre is so constructed that from any of the 150 seats one may easily see and hear all that goes on. The hospital contains fifty beds, and 13,000 people were treated in the clinic during the past year it was announced.

Stretching for Angina: Samuel Constable, M. D., of London, according to *New York Medical Journal*, relieves cases of extreme angina pectoris by having the patient reach back and above his head and grasp the top of the bed on which he lies, stretching and raising the chest wall. He says the result is immediate relief of pain, and that he has this repeated every two hours for weeks at a time if necessary, and at least in some cases it never fails to give relief.

Dr. Constable is groping for it certainly, and while this is very crude as compared with what a competent osteopath would do he is accomplishing some of the latter's objects in administering such treatment. It is noticeable that the M. D.'s are not shying at mechanical treatment as they once did. If even stretching muscles and expanding the chest cavity will give temporary relief in angina why not assume that many if not most severe pains can be relieved if the effort is made along the right line without resorting to drug anodynes, the after effects of which are most serious? No doubt necessity, due to the fact that Dr. Constable did not dare give his patient (who was a brother practitioner) an anodyne, started his inventive genius to work.

Married: Dr. and Mrs. Henry Viehe, of Memphis, Tenn., announce the marriage of their daughter, Jessie Catherine, to Mr. Henry Wales North, Nov. 23.

Dr. Grace M. Bales, of Hanford, Cal., announces her marriage to Mr. Fred K. Howard, Agricultural Commissioner of Kings County, Cal., Oct. 11.

Born: To Dr. and Mrs. O. C. Robertson, of Owensboro, Ky., a daughter.

Died: At her home in Brooklyn, N. Y., November 16, Dr. Lula L. Pemberton, wife of Dr. S. D. Pemberton, of that city. She was a graduate of the A. S. O. about sixteen years ago, and had been active in professional and church affairs of Brooklyn. She is survived by her husband and several members of her family, who are active practicians of osteopathy.

At his home, in Columbus, Ohio, Dr. T. J. L. Morris. Dr. Morris graduated from the A. S. O. in 1898 and had had a wide experience and successful practice.

Positions Wanted: Experienced graduate of A. S. O., 29 years of age, and married, wishes to assist in practice or form partnership. Can give best of references as to character, work and college record.

Address D., care A. O. A. JOURNAL, Orange, N. J.

Experienced woman osteopath, twelve years in practice, wishes position as assistant or associate in established practice.

Address C., care A. O. A. JOURNAL, Orange, N. J.

APPLICATIONS FOR MEMBERSHIP

Connecticut

Lynes, Lillian M. (A), Thayer Bldg, Norwich.

Iowa

Spring, C. F. (Sc.), S. & L. Bldg., Des Moines.

Massachusetts

Campbell, Mary A. (Mc.), 1318 Beacon St., Brookline.

England

Beadon, Mrs. Wm. Court (A), Studley, 30 Wimborne Rd., Bournemouth.

Scotland

Currie, Helen Burns (La.), 15 Roxburgh St. (West), Glasgow.

CHANGES OF ADDRESS

Arnold, Homer J., from 1515 W. Monroe St., to 1507 E. 55th St., Chicago, Ill.

Arnott, Neil, from 3 Buckingham Gate, to 69 Picadilly, London, W., England.

Clement, Henry W., from 43 Blackstone Blvd., to Edwin A. Smith Bldg., Providence, R. I.

Coons, W. N., now has office in Schofield Bldg., Cleveland, Ohio.

Crookshank, J. A., from Faribault, to Albert Lea, Minn.

Crow, Louise P., from 5311 Monte Vista St., to Baker-Detwiler Bldg., Los Angeles, Cal.

Dietz, Phineas, from 500 Broad St., to 414 Clinton Ave., Newark, N. J.

Dow, Lydia S., from Central Point, to M. F. & Hwd. Bldg., Medford, Ore.

Edwards, James D., from Century Bldg., to Chemical Bldg., St. Louis, Mo.

Evans, Cecilia H., from New Orleans, to 209 Louise-anna Ave., Monroe, La.

Evans, Harryette S., now located at Coronation Bldg., Montreal, Quebec.

Evans, Nelle M., located in McGinley Bldg., West Palm Beach, Fla.

Fowler, Rebecca, from Warren, Ark., to Lewiston, Pa.

Griffiths, Geo. A., from Mount Airy, N. C., to Wachovia Bank Bldg., Winston-Salem, N. C.

Grimes, Idella A., from Franklin Bank Bldg., to Liberty Bldg., Philadelphia, Pa.

Hoggins, Josephine H., from U. Arn Bldg., to McClure Bldg., Frankfort, Ky.

Hutchinson, H. F., from Aurora, Mo., to Underwood Bldg., Ottawa, Kan.

Morris, Fred W., from 316 Broadway, to United Bank Bldg., Paterson, N. J.

Oliver, Mada, from Newton, Kan., to Hotel Kupper, Kansas City, Mo.

Parcells, M. L., from San Bernardino, to Anderson Bldg., Calexico, Cal.

Peppenger, Cora R., from Glasgow, Mont., to Salmon, Idaho.

Rector, Scott I., from Faribault, to Albert Lea, Minn.

Rowlingson, C. B., from Providence, R. I., to 342 North Reno St., Los Angeles, Cal.

Sears, Harriet, from Ontario, to Vale, Ore.

Smith, Georgiana B., from 905 W. 56th St., to 420 So. Grand Ave., Los Angeles, Cal.

Snyder, C. Paul, from Titusville, Pa., to Pennsylvania Bldg., Philadelphia, Pa.

Spies, L. Elizabeth, from Kansas City, Mo., to 1482 Marion, Seattle, Wash.

Storey, Robert J., from 1118 No. 40th St., to Hale Bldg., Philadelphia, Pa.

Warren, E. D., from Saronburg, Kan., to 1315 Cherry St., Kansas City, Mo.

Wilson, Bertha R., from Kansas City, Mo., to Fair, Bertha Wilson Vatet Bldg., Muncie, Ind.

Hiatt,, E. C., from Payette, Ida., to Rexburg, Ida.

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